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SAM L. ROGERS, Director
WASHINGTON

CENSUS *of* MANUFACTURES MINES AND QUARRIES PETROLEUM *and* NATURAL GAS 1919

WINFIELD S. HARTLEY
Chief Statistician for Manufactures

INSTRUCTIONS TO SPECIAL AGENTS

DEPARTMENT OF COMMERCE
U.S. BUREAU OF THE CENSUS
WASHINGTON

CENSUS *of* MANUFACTURES MINES AND QUARRIES PETROLEUM *and* NATURAL GAS 1919

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CHIEF STATISTICIAN FOR MANUFACTURES

INSTRUCTIONS TO SPECIAL AGENTS

WASHINGTON
GOVERNMENT PRINTING OFFICE
1919

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NOTE TO SPECIAL AGENTS AND CLERKS.

DEPARTMENT OF COMMERCE,
BUREAU OF THE CENSUS,
Washington, December 31, 1919.

The following instructions to special agents and clerks employed in taking the census of manufactures and mines and quarries are hereby approved. The canvass will be made under the supervision of the Chief Statistician for Manufactures, and all special agents and clerks engaged in field work must follow the instructions of that official.

There is but a limited time in which to complete this work, and it is essential that all employees exert themselves to the utmost. Those who do satisfactory work will be reassigned to other districts and retained in the service until the canvass is finished.

Sam. L. Rogers

Director of the Census.

MANUFACTURES.

DAILY REPORTS AND CORRESPONDENCE.

1. Daily reports.—All special agents must make daily work reports (Form 30) not only for every day they are actually employed and for which compensation is claimed, but every day during employment, including Sunday, must be accounted for, whether or not work or travel is actually performed. Failure to make a report for each day will delay payment of salary and expense accounts. The daily reports of the agents working under the supervision of chief special agents, together with all schedules taken daily, as herein provided, must be forwarded at the close of the day to the chief special agent in charge of the city or district. The daily reports and schedules secured by agents who do not work under the direction of a chief special agent must be forwarded *daily* to the Bureau of the Census. The daily report calls for details as to travel on official business. Whenever such travel is necessary, agents are required to use railroad, trolley, or stage, if available, and in cases where livery or automobile is used, the necessity must be fully explained on the daily report of the day such conveyance was used. These side trips may often be avoided by use of phone, and every effort should be made in this direction. Inquiry will often develop the size or importance of an establishment located in some remote section, and if a very small gristmill or sawmill, for instance, the agent should try to have the report mailed to him at some place he must visit in the vicinity of the establishment in question. The agent, therefore, must carefully examine his list of establishments to be canvassed in advance of reaching the locality, and familiarize himself with the inaccessible places long before reaching the city or town from which the actual visit is to be made, and take some such action as indicated to avoid expenditure of time and money, excessive and unwarranted, for very meager results. The mail and the telegraph addresses should be given daily and changes indicated sufficiently far in advance to enable the office to reach the agents by mail and wire at all times. All telegrams must be addressed to the Census Bureau, not to the Director of the Census.

2. Registered mail.—All reports are to be forwarded by registered mail in the return penalty envelope furnished for that purpose. Attention is directed to section 29, of the Census Act, page 71, wherein it will be seen that there is no restriction as to class or weight

of official mail addressed to the Census Office. This provision has been incorporated in the postal regulations.

3. Requests for supplies.—Letters relative to the progress of the work and requests for supplies, instructions, etc., must be addressed to the Director of the Census, Washington, D. C., unless otherwise specially provided for, as in the case of agents working in a city or territory in charge of a Chief Special Agent. Inquiries or requisitions of any character must not be made upon the daily report, but should be made on the special printed form or in a separate letter.

4. Date of completing work.—Special agents must give sufficient notice of the date they will complete the work to which they are assigned, so that they may be assigned to other territory without loss of time.

LISTS AND CANVASS OF ESTABLISHMENTS.

5. Index cards.—To assist in the canvass of establishments, each special agent will be furnished with index cards (Forms 8–608c and 8–608d) containing the names and addresses of establishments to be canvassed in his district. These cards will be arranged and listed alphabetically by cities and towns within each county. In addition, except for agents working under chief special agents in certain large cities, an itinerary list will be furnished with localities arranged as nearly as possible in the order in which the special agent will visit the establishments with the least expenditure of time and duplication of travel. A careful notation must be made on the typewritten list of the disposition of each card and the list must be returned to this office upon the completion of the canvass in each district. If it is found necessary to change the prescribed route to save time, or for other reasons, the office must at once be notified by letter.

On the right-hand margin of the index cards is stamped the source from which the name of the establishment was obtained, as—Bradstreet, City directory, Trade directory, Internal revenue, Forestry, etc.

The word "circular" on the left-hand margin of an index card shows that the circular which was sent to the establishment containing inquiries in regard to the character of the industry and the place where the report would be made, etc., was returned by the establishment.

"Agent investigate" across the face of a card indicates that the information received by the Census Bureau in regard to the establishment was not sufficient to explain the nature of the industry and that there is doubt as to whether the establishment comes within the scope of the census. The agent, therefore, must make such inquiries

as will make the conditions plain and obtain a report if one should be secured.

The reverse side of each card must be examined as notations may have been placed there which will be of assistance in locating the establishment or securing the report.

6. Unlisted establishments.—Although the list of establishments has been made as complete as possible, it has not been practicable to secure absolute accuracy and completeness, and *special agents must be constantly on the alert to discover establishments not named on the cards. Agents will be held strictly accountable for a complete canvass of the district to which they are assigned.* They must make careful inquiry for other manufactories located in that vicinity; and in rural districts also they should be on the lookout for establishments in their districts for which they have no cards. Where additional establishments are found, reports must be obtained for them, and in all such cases the note "No index card for this establishment" must be made on the bottom of the title-page of the report.

7. Cards for nonmanufacturing establishments.—It is possible that some establishments for which there are index cards may be found to be engaged in industries (see pars. 25 to 36) which are omitted from the census of manufactures. In each case a notation is to be made on the card and daily report stating the reason why the report was not secured. It is not sufficient to state: "Not a manufacturing establishment." The character of the business must be briefly and accurately described by a notation, such as "Retail confectioner," "Restaurant," "Caterer," "Carpenter shop," "Cleaning and pressing wearing apparel," "Drug store," "Product less than $500," etc.

8. Establishments reported in 1914.—The industry number (according to the 1914 classification) is given in the upper left-hand corner of all index cards for establishments reported at that census. The fact that the establishment reported at the prior census has answered the preliminary circular for this census that it was in business during 1919 indicates that a report must be secured.

9. Return of index cards.—Special agents in every instance will be held to a strict accountability for all index cards assigned them. A return must be secured from each establishment or a satisfactory explanation given on the back of the card, as instructed, in paragraph 7, if the establishment is not a manufacturing establishment, or such as: "General office located at ———, where information must be secured;" or "Establishment removed to ———" (giving date of removal and stating whether manufacturing was done at the place of canvass during any part of the year 1919).

Each index card is numbered and the same number is on the typewritten list of establishments. *This number must in all cases be written in the upper right-hand corner of the schedule and the left-hand margin of the daily report.*

Each index card must be signed by the special agent and returned either attached to the appropriate schedule or to the daily report with an explanation as above indicated. For certain large cities, where there is a chief special agent, the cards may be retained by him until the completion of the canvass.

10. Change in name of establishment.—If there has been a change in the name or location of the factory since the index card was prepared, or if a report is secured for an establishment under a different name from that appearing on the card, the card must be *corrected* to agree with the new conditions and the daily report must state this change. *No erasures*, however, are to be made on the index card.

11. Central Offices.—As a rule, "Central office cards" (Form 8–706c) represent establishments of considerable importance, and, for this and many other reasons, should receive the earliest attention by special agents. This is very important and applies not only to agents in charge of metropolitan districts, and all others having special agents under their supervision, but to those working independently who may have "Central office cards."

12. Establishments having office outside agent's district.—The office has endeavored to ascertain the name and location of all factories for which the census reports will be made from a central office, and the cards for such factories are stamped "Central office." In some cases where plants are controlled from a central office the Bureau of the Census has been advised that the census report will be made at the plant. In such cases the card has been stamped "Information at the plant," and the agent is required to secure a complete report. In case the special agent discovers an establishment in his district for which the reports are to be prepared elsewhere, and which has not been indicated on the index card as a "Central office" as indicated above, the facts must be stated on the index card and also on the daily report and the card returned attached to the daily report. It is important that the *precise* post-office address (street number or room in office building) of such office be stated. If, in such cases, answers to any of the inquiries can be obtained at the factory canvassed, they should be obtained and the partially prepared report forwarded with full explanation. These facts should not only be reported to the Census Bureau but also to the agent in charge of the city where the report is to be secured by the use of postal cards, prepared for that

purpose. The agent will then take no further action with regard to securing the report unless he receives further instructions.

13. Factories outside, but offices inside, the agent's district.—Reports must *not* be secured from the office of any establishment having no factory within the limits of the district being canvassed unless the index card states that the report must be secured at such office or special instructions are received. In the absence of such instructions it may be assumed that the establishment will make report to the agent for the place where the factory is located.

14. Additional factories of same owner, but outside the agent's district.—It will sometimes be found that the individual or company reporting also operates a factory, or factories, outside of the agent's district. Where it is found that a report for such factory can be secured only at the office the agent is visiting, he should obtain the report and call attention to it on his daily work report, so that prompt notice may be given to the agent in the district where the factory is located. Each report of a factory outside the district of the agent must be taken under the local name of such factory and show its location by state, county, city, or town, etc. The correct location of the factory is of vital importance and must be carefully reported. If, on the other hand, the reports for these outside factories must be secured only at the factories, a slip should be attached to the report secured for the local factory, giving the location of each of the outside factories, and the name and the place where the information may be obtained, and at once forwarded to the Census Office.

15. Idle establishments.—No report should be secured for establishments which were closed or idle during the *whole* of the census year nor for establishments that were abandoned or dismantled prior to January 1, 1919. All manufacturing establishments, however, that commenced operations or did any work during the census year ending December 31, 1919, must be reported whether or not they were in operation at the time of canvass or at the end of the year 1919 (see par. 26)

METHOD OF SECURING REPORTS.

16. Schedules mailed to manufacturers.—Blank schedules have been mailed to all establishments listed. A number of these establishments have made complete reports by mail, and the cards for these establishments are stamped "Report secured by mail." Cards for such establishments are furnished the special agents to acquaint them with the fact that a return has been received. The cards for such establishments must be returned by the agent with his daily report for the day he canvasses the neighborhood in which the establishments are

located, and the names of the establishments must be given on the daily report.

If the report received from the establishment by mail is defective, a copy will be sent to the agent for completion. These copies must be carefully preserved and completed or corrected as may be necessary. The corrected copy must be signed as "*Corrected by*" the agent securing the corrections and returned as an original schedule, together with its accompanying card, or a complete new schedule secured and returned with the card; in the latter case the words "*See copy*" must be written on the top margin of the title-page of the new schedule. The defective copy must always be returned, either "corrected" or attached to the new report, if one is secured.

17. Understanding of the schedules necessary.—Before undertaking the field work, it is essential that employees should thoroughly understand the schedules to be used, both the General and the Supplemental, but particularly the interrelation of the several inquiries in the General Schedule. This is not only necessary to determine whether or not the individual reports are fully and properly prepared, but in order that the agent may be able when called upon to explain the details fully to manufacturers. The several inquiries of the General Schedule are explained separately in these instructions, but their relation one with the other must also be given careful consideration. For instance, the capital must be consistent with the value of products and harmonize with answer as to "Rent of factory or works" under Inquiry 8, "Rent and taxes"; labor and wages not only what seems necessary for the production, but to make sure that the total number of wage earners in Inquiries 4 and 5 are in agreement; and that the materials used are not only harmonious as to kinds used for the products reported, but their total cost consistent with the value of products. These features will vary more or less according to the industry reporting, which, of course, must also receive consideration. Wherever there is a seeming inconsistency in the relation of any of the inquiries, an explanation must be made under "Remarks," even if the agent personally has satisfied himself that it is correct.

18. Reports already forwarded by manufacturers.—In some cases the manufacturer will have already forwarded his report to Washington before the agent arrives. If the agent is satisfied that the report has been sent by mail, he must immediately notify the office, giving the date of mailing by the manufacturer, enter the fact on his daily report, and make the following entry on the index card: "Report sent by mail." In some cases the replies to the preliminary circular have been confused with the report itself. The agent must be satisfied that this is not the case before concluding that the report has

been mailed. The agent should not accept a promise that the report will be sent to him or to Washington later, but should secure it in person.

19. Reports prepared by manufacturers awaiting agent's call.—In case the manufacturer has the report prepared when the agent arrives, the agent should satisfy himself as to the source and accuracy of the information, and if necessary explain the meaning of any question concerning which the manufacturer is in doubt, and assure himself that the report is complete before it is accepted.

If a manufacturer *insists* upon sending his report to the Census Bureau by mail instead of giving it to the special agent, the agent, if possible, should see that the schedule is properly prepared, and furnish an addressed official envelope for mailing it to the bureau. He must also give the name of the establishment on his daily report, with the statement that the schedule will be, or has been, sent by mail.

If the report has not been prepared, and the agent is unable to secure it, he should go over the inquiries with the manufacturer, and obtain a definite date when the report will be mailed, which date must be noted in his daily report in order that the office may be in a position to notify the company of the failure to keep its promise in case the report is not received as agreed upon. Such cases, however, must be exceptional, and fully explained, since the duty of the agent is to get the report in person. If the report is partly made out and must be left with the manufacturer for completion, a copy of the report so far as prepared must be sent to the office with explanation.

20. Promptness required of agents.—Ordinarily the agent will be able to secure the report on his first visit, or in the case of large or complex establishments requiring more than one visit, should at least begin the actual work of compiling the data on his first visit. For a majority of establishments the report can be secured without necessitating a lengthy interview or a second call. The making of future appointments for the preparation of the report should be avoided, since such appointments are apt to lead to delay.

It is not necessary that the agent enter into profuse explanations or give time to anything beyond the necessary work of interrogation. He should be prompt and decisive in announcing his object and making his inquiries, but in so doing he should be courteous, and careful not to arouse antagonism or give offense.

21. Answers to inquiries to be taken from books of accounts and records.—The information secured must be accurate. In drafting the schedule every effort has been made to frame the inquiries in such a form that the answers to them can generally be taken directly from the books of accounts and the records of the establishment canvassed. The agent may find a disposition on the part of some persons

furnishing the information to give general statements or estimates, claiming that they approximate very closely the exact figures. General statements or estimates, however, must not be accepted where it is possible to secure the answers directly from books of accounts and records.

22. Erroneous statements.—The special agent is not to accept answers which he knows, or has reason to believe, are false, as he has a right to a true statement on every matter respecting which he is bound to inquire. In most cases if his informant gives him a round number (e. g., 6,000 or 200,000) it is likely to be only an estimate, and should not be accepted if more precise data can be secured. If statements which are obviously erroneous are persisted in, the special agent should enter upon the report the facts as nearly as he can ascertain them by his own observation or by inquiry of creditable persons, and state the source of the information secured.

23. Compulsory feature of census.—It will generally be found that the person called upon will give the information without objection or delay. Special agents are therefore cautioned not to refer unnecessarily to the compulsory feature of the law. Only where the information required by law is positively refused need the penalties of noncompliance be referred to. The special agent will then quietly but firmly point out the consequences of persistent refusal, quoting, if necessary, the provision of the law as shown on pages 70 and 71 of these instructions.

24. Information confidential.—Special agents are prohibited by law from delegating to any other person their authority to enter establishments and collect information.

Attention is also called to the penal provisions in the census act, pages 69 and 70 of these instructions, one of which provides that information gained by a special agent or by any other employee in the performance of his duties must not be disclosed to any person not authorized to receive the same, under a penalty not to exceed $1.000 or imprisonment for two years, or both.

If manufacturers or others furnishing data object to giving the report on the ground that it would disclose the secrets of their business, the special agent should assure them that the results of their individual business will not be made public and should call attention to the statement to that effect on the title-page of the schedule and to the provisions of the law. The agent may also explain that the information will not be used for the purposes of taxation, or in any manner to identify the operations of any individual establishment, and will not be disclosed to any bureau of the Federal Government unless so stated on the schedules. The intent of the law, which will be strictly carried out,

is to prevent the disclosure of information which might in any way operate to the detriment of the person or establishment supplying the same.

WHAT CONSTITUTES A FACTORY—ESTABLISHMENTS NOT TO BE CANVASSED.

25. Census confined to factories.—The census is confined to manufacturing establishments conducted under the factory system as distinguished from the neighborhood, hand, and building industries. No precise definition of a factory for census purposes can be given, but the following instructions relative to the omission of certain classes of establishments will show the general line of division. In cases where there is reasonable doubt as to whether an establishment should be taken or omitted, a report should be secured, and under "Remarks" give the reason for securing it.

26. Very small establishments.—Do not report small establishments having annual products of less than $500. This does not apply to establishments idle during a portion of the year or new establishments started during the year, and which for that reason did not have products in excess of that amount but are capable, under normal conditions, of producing annual products of $500 or more.

Reports should not be secured for work done in homes, such, for instance, as the manufacture of clothing and gloves, the knitting of socks or garments, the making of rag carpets, for all of which reports are required when done in factories. The amount paid by manufacturers for work of this kind, however, should appear in the reports of those for whom the work is done, as "Contract work" under Inquiry 6.

27. Building trades.—Establishments engaged in the various building industries must not be reported. This applies particularly to the following:

Architects.
Bridge building.
Building and construction work.
Carpenter shops and contracting carpenters.
Electric wiring and construction work.
Excavating, well digging, etc.
Masonry, brick and stone builders and contractors.
Moving and raising buildings.
Painting—house, theatrical scenes, etc.
Paper hanging.
Paving and the laying of artificial stone, concrete, etc.
Plastering and stuccowork.
Plumbing, gas fitting, steam fitting, etc.
Roofing, laying of roofing of any character.
Railroad construction.
Stage carpentering.

Establishments engaged in manufacturing supplies used in building, however, are to be included—for example, planing mills making supplies for carpenters; brick manufacturers; cutting of marble and stone, whether at quarries or separate establishments; manufacturers of paving materials, paints, plumbing supplies, electrical apparatus and appliances; shops where roofing, cornices, etc., are manufactured; coppersmithing and sheet-iron work establishments should be reported. If the building materials are manufactured by an establishment which is also engaged in the construction of buildings, bridges, etc., the report should relate only to the manufacturing part of the business.

28. Custom work on wearing apparel.—Reports are not required for establishments doing strictly *custom work*, i. e., work to the order of the individual buyer *on wearing apparel* of all sorts. This applies to the following classes of establishments, among others:

Boot and shoe custom and repair shops.

Custom tailoring shops, or the manufacture of clothing by persons in their own living quarters.

Dressmaking.

Cleaning and pressing garments, without mechanical power.

Fur stores making and repairing garments for individual customers.

Millinery establishments.

Establishments engaged in manufacturing the same classes of articles for the general trade should be reported—for example, boot and shoe factories; establishments manufacturing ready-made clothing, whether for men or women; establishments manufacturing fur goods for the trade; and establishments manufacturing millinery goods for the trade should be reported. Certain industries, boots and shoes and the ready-made clothing industries being examples, operate under peculiar conditions. In addition to those that cut out the stock and manufacture, there are establishments that cut out the stock and have all or a part of the manufacturing done by contract, and reports for such establishments must be secured under either condition of doing business. Shops or factories where the work done is entirely on material owned by others must also be reported. Reports, however, must not be secured for establishments having goods made for them but who furnish none of the materials. Dye works, bleacheries, and print works engaged in dyeing, bleaching, or refinishing fabrics must be reported.

The phrase "the general trade," as used in these instructions, means those who again sell the goods, whether at wholesale or at retail, as distinguished from the individual customer buying goods to special order for his own personal use.

29. Retail stores.—Retail stores and other establishments which incidentally manufacture small quantities of goods which they sell

must not be reported. This applies to the following classes of establishments, among others:

Confectionery stores.
Drug stores.
Furniture stores.
Hair-work stores.
Hairdressing establishments, etc.
Jewelry stores.
Opticians.

Establishments making these same articles for the general trade must be reported.—In particular, some retail jewelers, druggists, and opticians also are large manufacturers of the goods which they retail or sell to other dealers, and these should be reported. (The bleaching and dyeing of sponges, done by a few large druggists, should be reported.)

Prior to the great war, lenses were chiefly of foreign manufacture, but are now largely made in the United States. This being a new industry, special agents must always show lenses separately. If manufactured as an industry by itself, a complete report must be secured on the General Schedule, and if produced in connection with the manufacture of other optical goods made for the trade, show the value of lenses separately.

30. Miscellaneous hand trades.—The small hand trades, engaged chiefly in repair work or work to the individual order, should not be reported. This applies, among others, to the following:

Bicycle repairing.
Blacksmith and wheelwright shops. Establishments, however, that manufactured carriages and wagons or other vehicles during the year must be reported.
Blue printing.
Harness shops.
Hectograph or "multigraph" work.
Locksmith and gunsmith shops.
Photography.
Picture framing.
Furniture-repairing and upholstery shops.
Rag carpets, not made in factories.
Sewing-machine repair shops.
Taxidermists.
Typewriter repairing.
Tin shops.
Undertakers.

Establishments engaged in these or similar industries, which manufacture goods for the general trade, must be reported.—Thus, boiler works and foundry and machine shops must be reported, also harness and saddlery factories making goods for the general trade, manufacturers

of looking-glass and picture frames for the general trade, and tin shops where goods are made in considerable quantities. When engraving is done by lithographing or printing establishments, this work must be included in their total business; engraving, diesinking, and plate printing must be reported. Garages or shops where the repair work on automobiles or carriages and wagons is extensive and partakes of the character of machine-shop work must be reported.

The manufacture of ice when produced for sale by cold-storage plants must be reported. If the cold-storage business is incident to the manufacture of ice, the report may cover the operations of the entire establishment. On the other hand, if the manufacture of ice for sale is incident to the other business, get a separate report for the manufacture of ice.

31. Specially omitted industries.—The following industries, although sometimes referred to as manufacturing industries, are not so considered by the Census Bureau, and no reports must be secured for them:

Costumers making costumes for rent only.

Cotton cleaning and rehandling.

Cotton compressing.

Cotton ginning.

Dentistry.

Dressing, packing, and shipping of poultry. (When done on a large scale, however, or by slaughtering and meat-packing establishments it must be reported.)

Electric light and power stations.

Fisheries. (The canning and preserving of fish and oysters, however, must be reported.)

Florists and floral designs of natural flowers.

Gas, purchased and distributed, manufactured or natural, should not be reported unless the company also manufactures gas.

Hay and straw baling.

Ice harvesting. (The manufacture of ice must be reported.)

Junk shops.

Kindling wood.

Map mounting.

Packing and shipping of fruits and vegetables (except as provided in par. 34).

Professional services.

Rectifying and blending of liquors.

Retail butchers.

Salting hides.

Stone crushing when done in connection with road building or other construction work. Reports, however, should be obtained for establishments which are engaged in stone crushing as a business and sell the product as such.

Tobacco stemming and rehandling.

In addition to the industries indicated for which reports should not be secured, attention is called to the following, which likewise should not be reported:

Bottling should not be reported unless it is done by establishments in which the liquors, mineral waters, soda waters, sirups, tinctures, beverages, etc., are manufactured. In such cases the report should cover both the manufacturing and bottling operations.

Dairies should not be reported, although they may manufacture butter or cheese from surplus milk and cream. Butter and cheese factories, however, must be reported, although they may sell some milk and cream.

Manufacturing carried on in educational, eleemosynary, and penal institutions must not be reported. If, however, a private manufacturing concern has all or a portion of its work done by convict labor, the amount paid for such labor must be reported under Inquiry 6, as "Amount paid for contract work not done by the regular employees."

32. Distinction between farm and factory products.—The manufacture of butter, cheese, cider, vinegar, wine, and other products may be carried on either upon farms or in factories. In the former case the products will be classed as agricultural and no report is required, but in the latter they will be classed with those reported under the head of manufactures. As a rule, however, when manufactures of this character are conducted on farms where, in addition to the crops of the farm in question, materials purchased from others are also used, they will be classed as factories for census purposes and reports secured. *Factories canning fruits and vegetables, etc., for the trade must be reported, even though carried on in connection with a farm.*

The pulling and the scouring of wool done in establishments expressly devoted to such work should be reported. Such work done in slaughtering establishments and tanneries should be included in the reports for these establishments.

33. Sugar, molasses, sirup, sorghum.—Mills located on farms for the manufacture of sugar, molasses, sirup, or sorghum, will not be deemed to be "factories" if they confine their operations to the treatment of cane grown on the farm on which they are located. If, however, a mill located on a farm treats cane grown on farms other than the one on which such mill is located, it should be treated as a factory and a report secured. Reports, however, must be secured for

all mills in Louisiana and Texas engaged in the production of cane sugar and molasses located on plantations, although only the cane grown on the plantation is treated.

34. Packing and shipping of fruit.—In some localities this industry has reached such a condition of development as to constitute a factory industry. This is especially true when the fruit is dipped in hot water or placed in sulphur fumes, or where raisins are seeded and other processes performed. Reports must be secured for operations of this character.

The packing of oysters in hermetically sealed cans should be reported. The packing of oysters in open cans or in other containers where they are not subjected to any preservative process should not be reported unless carried on in connection with the hermetically sealing and preserving of oysters.

35. Reason for omitting establishments specified.—The object of the omission from the census of the classes of establishments indicated by the foregoing lists is to confine the census so far as possible to an enumeration of the factory industries. In many instances the same industry is carried on in large and small establishments, and, except as stated in paragraph 26, no distinction is made in the size of the establishment to be reported. It is in cases where the manufacture is incident to a mercantile business that the agents are most often called upon to exercise judgment in regard to the preparation of the reports, but the sale of products bought from others is mercantile business and is not to be included except under very special conditions (see par. 50).

36. Small custom mills.—Flour, feed, and grist mills and sawmills grinding or sawing for toll or for local custom exclusively, must be reported.

37. Lumber industry special schedule (E. S. and W. S.).—In reporting establishments engaged in merchant or contract sawing of lumber or in the manufacture of other products from logs or bolts, or those engaged in getting out saw logs or other timber products, the special schedule for "Lumber and timber products" (Form 143) should be used instead of the regular General Schedule. Among the products to be reported on the special schedule for "Lumber and timber products," are lumber, lath, shingles, crossties, telegraph and telephone poles, tanbark, cooperage stock, and veneers.

Two schedules have been prepared for this industry in order to meet the different kinds of wood found in certain so-called eastern and western states (ES and WS, respectively). The WS must be used in the following western states: Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, South Dakota, Utah, Wash-

ington, and Wyoming. All other states requiring the lumber schedule must be reported on the ES schedule. Both the WS and ES schedules have the same form number, 143.

38. Pulp wood consumed in 1919.—A card schedule (Form 152) has been provided for reporting pulp wood used by pulp mills in 1919 and reports must be secured in accordance with the inquiries. This card schedule should be mailed with the supplemental schedules for paper and pulp mills (Form 151) and receive the same general treatment.

39. Turpentine industry.—The operation of stills for the production of turpentine and naval stores is frequently associated with the gathering of crude materials and the care of a turpentine forest, and in such cases a combined report for the entire business should be made unless the books permit an accurate separation of the two branches.

40. Printing and publishing establishments.—Printing and publishing establishments, whether engaged in printing alone, publishing alone, or both of these lines of work, must be reported. Writing of books and solicitation of contracts for printing, when no work is done in the preparation of the manuscript, such as printing, binding, etc., however, must not be reported.

41. Manufacture of ice cream.—Reports must be secured for all establishments manufacturing ice cream for the trade. Reports are not required for establishments making ice cream in small quantities to be sold over their own counters at retail, but the value of this product should show separately if made by confectioners, bakers, or others from whom reports are secured for products other than ice cream.

42. Dyeing and cleaning.—At the censuses of 1904, 1909, and 1914 establishments engaged in dyeing and cleaning were omitted from the census statistics. At the census of 1919, however, reports must be secured for establishments of this character that are operated by mechanical power, which actually do dyeing. Reports should be secured, also, for large establishments operated by mechanical power engaged in cleaning and pressing garments, etc. No reports are required, however, for the numerous establishments cleaning and pressing garments not having mechanical power. "Dyeing and cleaning" must not be confused with the "dyeing and *finishing*" industry.

43. Power laundries.—All *steam* laundries, or laundries using power, except those operated in connection with hotels or institutions, must be reported on the General Schedule. Hand laundries using no power must not be reported. Make only one entry for value of products, which should be the amount received for work done.

WHAT CONSTITUTES AN ESTABLISHMENT—DIVIDED ESTABLISHMENTS.

44. Definition of establishment.—The term "establishment," as a unit of enumeration for this census, with the exceptions noted, is deemed to be one or more factories, mills, or plants owned or controlled by one individual, partnership, corporation, or other owner, located in the same town or city, and for which one set of books of account is kept.

45. Separate sets of books.—When the owner operates two or more plants in the same town or city, and maintains separate sets of books for each, they should be treated as separate establishments; but if one set of books only is kept, they may be treated as one establishment.

46. Separation of industries.—It is necessary to publish separately the statistics for the different industries as defined by the Census Bureau. Therefore, when two or more distinct industries, such as those indicated by the *supplemental schedules*, are carried on under the same ownership with only a single set of books, separate reports for the different industries must be prepared when practicable in the same way as described in paragraph 47 (see par. 112, sec. (*b*)).

47. Separation of localities.—It is necessary, however, to secure separate statistics for the different states and counties, and also for all cities with a population of 10,000 and over. Therefore, when the same owner operates two or more plants in different states, counties, or cities, or operates one plant in a city and another outside of that city, separate reports covering the plant or plants in each state, county, or each city of 10,000 population and over must be prepared, *though only one set of books is kept for all the plants.* If estimates are necessary to make the complete reports for the separate plants, they must be carefully prepared in consultation with the person who furnishes the information and marked "Estimate."

48. Industrial zones or metropolitan districts.—At the census of 1914 there were 15 metropolitan districts, and it is intended to increase this number to 69 at the census of 1919, as follows:

Akron.
Albany–Schenectady–Troy.
Atlanta.
Baltimore.
Bethlehem–Allentown–Easton.
Birmingham.
Boston.
Bridgeport–Stamford–Danbury.
Buffalo–Niagara.
Canton.
Chicago.
Cincinnati.
Cleveland.
Columbus.
Dallas–Fort Worth.
Davenport–Moline–Rock Island.

Dayton.
Denver.
Des Moines.
Detroit.
Duluth-Superior.
Fall River-Taunton-New Bedford.
Grand Rapids.
Harrisburg-York-Lancaster.
Hartford-New Britain.
Houston-Galveston.
Indianapolis.
Johnstown.
Kansas City.
Los Angeles.
Louisville.
Lowell-Lawrence-Haverhill.
Manchester-Nashua.
Memphis.
Milwaukee.
Minneapolis-St. Paul.
Nashville.
New Haven-Waterbury.
New Orleans.
New York.
Norfolk.
Omaha-Council Bluffs.
Peoria-Pekin.
Philadelphia.
Pittsburgh.
Portland (Oreg.).
Providence.
Pueblo-Colorado Springs.
Reading.
Richmond.
Rochester.
St. Louis.
Salt Lake City.
San Antonio.
San Francisco-Oakland.
Scranton-Wilkes-Barre.
Seattle.
Spokane.
Springfield-Holyoke.
Syracuse.
Tacoma.
Tampa.
Toledo.
Trenton.
Utica-Rome.
Washington, D. C.
Wilmington.
Worcester-Fitchburg.
Youngstown.

Each special agent in charge of an industrial zone or metropolitan district will be specially instructed as to the exact area. The agent must exercise great care in stating the exact location of the plant. (See paragraph 56.)

49. Reports for same ownership.—All reports secured by the special agent for plants conducted under the same ownership, whether covered by a single set of books or by separate sets of books, must be fastened together and proper notation made of the fact in the daily report.

50. Establishments engaged in manufacturing and also in other business.—A considerable number of establishments will be found which are engaged in manufacturing, and at the same time in some nonmanufacturing branch of business or industry, with only a single set of books covering the combined business. In those cases

where the nonmanufacturing branches of business are incident to the manufacturing business, or are insignificant, the schedule may cover the entire business. On the other hand, where the nonmanufacturing business is of importance the agent should prepare a schedule covering only the manufacturing, following the instructions in paragraph 51.

The following will illustrate some combinations of manufacture with other industries:

Coal mining with the manufacture of coke.

Mining of iron ore with the manufacture of pig iron.

Cultivation of vegetables and fruits with canning of the same.

Catching of fish and oysters with canning of the same.

In these and similar cases a separate report for the manufacturing business must be carefully prepared, all estimates marked "Estimate," and the basis of the estimates described under "Remarks" or on a separate sheet. Materials produced by the establishment itself and used in its manufacturing may be taken either at the cost of production, or at their market value at the point of consumption. Where the quarrying of granite, marble, slate, limestone, or other minerals is done in connection with their manufacture into finished products at the quarry or mine, the report should be secured in the manner described in paragraph 120.

51. Combined manufacturing and mercantile business.—Some establishments are engaged both in manufacturing and in mercantile business; that is, they not only sell their own products, but also buy the finished products of others for sale. Where the manufacturing is insignificant in quantity and merely incident to the mercantile business, no schedule should be secured. On the other hand, where the mercantile business is insignificant and merely incident to the manufacturing, a single report should be secured covering the entire business and no attempt should be made to separate the items as between the two branches of the business, but the facts should be noted on the schedule. In such cases finished products bought for sale should be reported as materials and the sales thereof as manufactured products of the establishment. In some instances factories of considerable size are conducted in connection with large mercantile establishments, such as department stores. Such factories must be reported, and a schedule prepared covering only the manufacturing (see par. 50), although all of the products may be disposed of in the store, which is operated under the same ownership.

PREPARATION OF THE GENERAL SCHEDULE.

52. General Schedule required for each establishment.—A General Schedule (Form 100) must be prepared for each establishment reported except for lumber and timber products (see par. 37) and, in addition, such supplemental schedule or schedules as may be necessary and proper for the establishment reporting.

53. Instructions to be strictly followed.—The instructions printed on the schedules must be strictly followed by the agent. In a few industries instructions regarding certain points in the General Schedule are extended in the supplemental schedule. The instructions on the supplemental schedules are additional to those given on the General Schedule and in no way modify them.

INQUIRY 1.—DESCRIPTION OF ESTABLISHMENT.

54. Name of establishment.—Since separate reports are to be obtained for different establishments when conducted under the same ownership, the local name of the establishment should be given as well as that of the owner.

55. Name of owner or operator.—The answer desired is the name of the person, partnership, corporation, etc., *operating* the establishment, whether such operator owns the plant or leases it.

56. Location of establishment.—The exact location of the plant or plants covered by the report must be shown by the answers to this inquiry, and especially to the one "*Is establishment located within the corporate limits of the city or town?*" Since separate statistics will be presented for certain cities, it is of the utmost importance that precise information relative to these points be given in order that the statistics of manufactures may be correctly presented by cities or other civil divisions. When the establishment is on the boundary line, or part of the plant is located in one civil division and part in another, or there are any other complications, full information on this subject must be given under "Remarks."

57. Post-office address of the general office.—For the majority of the establishments this will be the same as the *Location of the establishment*, but in many cases it is different, and inquiry should be made to develop this condition if it exists.

58. Character of organization.—This must be stated as one of the five kinds named in the schedule, or, if it is some other form, such other form must be definitely described. For estates and establishments operated by receivers, give, under "Remarks," the character of organization under former ownership.

59. Number of proprietors or partnership members.—The answer must show the number of individual proprietors or partnership members on the last day of the period covered by the report.

60. Character of industry.—The statistics of manufactures will be presented by kinds and by classes of industries. It is of the utmost importance, therefore, that the answer to this inquiry should very clearly show the kind of goods made, and, for unusual articles, their uses, or the specific character of the work done. Where the establishment covers more than one distinct kind of manufacturing operations or products, or is engaged in any nonmanufacturing work, such as transportation, mining, etc., especial care should be exercised to show in the answer to this inquiry all the lines of work engaged in or the principal products made. If necessary, additional information may be given under "Remarks." In all cases the particular articles produced should be named in the order of their importance; for example, "cigars, cigarettes, smoking and chewing tobacco," not "tobacco factory," which is too indefinite, or "pig iron, billets, bars, and wire," not "iron and steel." Brass manufacturers, for instance, may represent "hardware," "plumbers' supplies," or some other products for which there are specific classifications. For the manufacture of clothing, neckwear, handkerchiefs, etc., state definitely whether "men's," "women's," or "children's." A general description, such as "clothing," for instance, is not sufficiently specific.

Inquiry 2.—Capital Invested.

61. Amount of capital actually invested—owned and borrowed.—The purpose of this inquiry is to determine the total investment by the establishment for the purposes of its productive operations, but not including the value of rented property. Therefore, both capital owned by the operator and capital borrowed by him is to be included; in other words, no deduction is to be made from the value of the assets by reason of liabilities for money due others.

The value of horses, mules, delivery wagons, automobiles, and similar equipment should be included in the item "Land, buildings, machinery, and tools." Answer to the third item should include everything properly pertaining to the capital invested that is not included in answers to the first and second items.

62. Depreciation.—If the books of the establishment show specifically an item of depreciation charged against land, buildings, machinery, and tools, deduction of such depreciation should be made and the net value resulting after such deduction given. If, however, the books are not kept so as to show depreciation, no deduction for this item should be made.

63. Patent rights and good will.—Patent rights should not be considered as a part of the capital, except in so far as the value of these items may be included in other items as carried on the books of the establishment. If the books of the establishment in any way segregate or report separately the value of such patent rights, such value must not be included in the answer called for by Inquiry 2. No value for "Good will," however, should be included.

64. Separation of manufacturing from other investments.—In case manufacturing is carried on in connection with some other business, such as mining, for instance, and where only one set of books is kept for the entire business, the instructions in paragraphs 50 and 51 should be followed. In case, as will sometimes happen, there are separate accounts showing the operation of different branches of the business but only one account of the capital invested, the total investment represented by the manufacturing business should be reported as nearly as it can be estimated.

INQUIRIES 3 AND 4.—SALARIED EMPLOYEES—WAGE EARNERS, INCLUDING PIECEWORKERS.

65. Purpose of inquiries—Selection of date.—The purpose of these inquiries is to determine the number of persons employed on a given date by the manufacturing establishments of the country. So far as practicable such data should relate to December 15, 1919. Cases will occur, however, where the information for this date can not be obtained, or should not be taken, due either to the fact that the establishment was not in operation on that date, that the book or time records for that date are not obtainable, or because on that date the number of employees was *very much* below or above the number ordinarily employed. In all such cases the records for the day nearest December 15, 1919, for which data can be obtained, that are representative of the normal condition of the establishment as regards employment of labor, should be taken. In the case of seasonal industries it may be necessary to secure data for a date several months removed from December 15. In those cases, where a date other than December 15, 1919, has to be selected, the tendency or inclination of the officers of the establishment furnishing the information may be to refer you to a day of maximum employment. This should be guarded against and a day of normal or average employment selected.

66. Total number employed on a given day desired, not total number whose names appear on a given pay roll.—Note carefully that what is desired is the total *number employed on a given day*. This will in most cases be a number somewhat smaller, and in certain cases considerably smaller, than the number of names appearing on the pay

rolls consulted, owing to the fact that during the period covered by the pay rolls all will not be continuously employed, a considerable number working only certain of the days. Probably in the majority of cases the pay rolls and time records are kept in such a way that it is possible to get the record for a particular day, in which case the record for a representative *single day* should be taken. If this can not be done, the total number on the pay roll should be counted and noted on the margin, and a careful estimate of the average number employed during the period covered by the pay roll should be used in preparing the report.

67. When estimates may be accepted.—In case pay rolls or other records are not available for a normal or representative day, a careful estimate must be taken in substitution for data from records, and the fact that the data are based on an estimate should be stated on the margin of the schedule using the word "Estimate."

For establishments employing on an average less than 25 persons, although desirable, it is not imperative to consult the pay rolls or books to secure answers to these inquiries.

68. Segregation according to sex and age periods.—In all cases the total number of salaried employees and wage earners should be determined before the attempt is made to segregate them according to sex and age periods. In case the records of the establishment do not show this segregation, it will have to be made by means of a careful estimate by the officers, superintendents, foremen, or others who have personal knowledge or charge of the employees. Great care should be exercised by the agent in seeing that this segregation is made by the person or persons competent to do so and that it is carefully done.

69. Officers of corporations who receive no salaries, and directors who receive only a fee for attending meetings, must not be reported. All salaried officials, such as the president, vice president, secretary, and treasurer, who devote all or a considerable proportion of their time to the business, must be included. Officers of corporations should not be reported for the repair shops of steam or electric railways, or for the manufacturing done by large mercantile establishments for which reports are secured for their manufactures.

70. Foremen and overseers.—The three subinquiries of Inquiry 3 are intended to embrace the salaried, clerical, and supervisory employees as distinguished from wage earners. In some industries it is difficult to preserve this distinction, especially as to foremen and overseers. Foremen and overseers who have charge of a few workmen, but with little additional responsibility or pay, and who at the same time perform work similar to that of other wage earners, are not to be included

as salaried employees. To come within the scope of Inquiry 3 they must devote the whole or the greater part of their time to supervision.

71. Traveling salesmen.—If the manufacturing department of an establishment turns over its product to a separate selling department at a given value or price, which value or price is reported in answer to Inquiry 10, the traveling and other salesmen would be employed by the selling department, and their number and salaries should not be reported in this schedule. If, however, the value of the products represents the value reported by the selling department the salesmen of the establishment are to be reported in Inquiry 3 and their salaries in Inquiry 6. Under the latter condition, if salesmen are employed on commission their number and the amounts of their commissions should be reported under Inquiries 3 and 6 with "Clerks, stenographers, salesmen, etc."

72. Distinction between salaried employees and wage earners.—No person should be reported as a salaried employee merely because he is hired by the week or month instead of by the day. The distinction should be based primarily upon the character of work done rather than upon the unit of time as the basis of employment. Wage earners are not confined to those who receive day wages, although most wage earners are paid on this basis. It will doubtless be found, for instance, that engineers and firemen in mills and pressmen in newspaper offices are often employed by the week or month, but they should be classed as wage earners rather than as salaried employees. Time keepers, messenger boys, proof readers, etc., in printing establishments, and the like, whose work is closely related to that of persons who would ordinarily be called clerks, stenographers, and salesmen may be classed as salaried employees. Drivers on delivery wagons should be classed as wage earners.

73. Wage earners employed indirectly.—In some establishments wage earners who actually work for the establishment in the same building as others may not appear upon its pay rolls, being indirectly employed and paid through superintendents, heads of departments, foremen, and the like. Careful inquiry must be made to ascertain such conditions, and the number of persons so employed and their compensation must be estimated as nearly as possible and included with other wage earners, and the basis of the estimate noted on the schedule.

On the other hand, answers to this inquiry should not include the employees of independent contractors having separate establishments who perform work under contract for the establishment reporting. Such contractors should be reported in a separate schedule which will account for their employees.

The answers to the inquiry should not include the number of persons working at their homes on piecework, a custom peculiar to the glove and a few other industries. The amount paid for such work, however, should be included in the report of the company for which the work was done, as "amount paid for contract work not done by the regular employees."

74. Convict labor.—The number of such employees working under contract, piece price, or other system must not be included in reply to Inquiries 3, 4, or 5. The amount paid for such service, however, should be included as "amount paid for contract work not done by the regular employees."

INQUIRY 5.—WAGE EARNERS EACH MONTH.

75. Number on 15th day of month.—All of the instructions for Inquiry 4 apply to this inquiry. Make entries for all months covered by the report. Take the 15th day of each month, unless it falls on a Sunday or unless the pay roll for that day is not available. If the establishment was shut down on the 15th of the month, select a day nearest to that day for which a satisfactory record can be obtained and give the date selected.

INQUIRY 6.—SALARY AND WAGE PAYMENTS.

76. Number employed.—The instructions under Inquiries 3, 4, and 5 should be borne in mind in connection with Inquiry 6.

77. Classes to be reported separately.—The amount paid each of the four classes of employees should be given separately. The total must represent the amount paid for salaries and wages during the period covered by the report.

78. Board and rent when furnished as part compensation of employees should *not* be included as wages, but the number of such employees receiving board or rent free should be noted at the bottom of page 2 of the schedule.

79. Bonuses or percentages of profits when paid to officers, superintendents, foremen, or wage earners should be included in the amount of salaries or wages. This does not include dividends paid on stock in a corporation which officers, employees, or wage earners may hold.

80. Contract work.—The answer to this inquiry must include only the expenditures for work on the products reported in answer to Inquiry 10, when done by or under the supervision of contractors or by persons working at their homes independently of the regular employees; it must not include any part of the amount reported under salaries and wages.

INQUIRY 7.—TIME IN OPERATION AND HOURS WORKED.

81. Days in operation during the year.—The answer to this inquiry should show the entire number of days the establishment or any portion of it was in actual operation, whether working full time, part time, or overtime—that is, if the establishment was operated on a given day for 1 hour, or more, or by two or more shifts for the entire 24 hours, the answer in either case would be the same, namely, *1 day*. The full possible working time of an establishment, operating continuously, except on Sundays and holidays, is about 307 days, depending on the number of holidays.

82. Number of hours normally worked by wage earners.—"Per shift" refers to the number of hours worked by each set of wage earners, not the total number of hours worked per day, when two or more sets of workmen were employed. The number of hours worked "per week" is called for in order that the practice of the establishment relative to the working of only half a day or any other fraction of a day on Saturdays or under other circumstances may be brought out. If both a day shift and a night shift, use day shift.

INQUIRY 8.—RENT AND TAXES.

83. Rent of factory or works.—If the general office, or other office buildings, are rented and are located elsewhere than at the factory, and the factory or part of it is also rented, the total rent being carried as one item on the books, the amount of rent chargeable for the factory only should be ascertained and entered separately in reply to the first subquestion of the inquiry. In case a rented factory has an office as part of the premises, report the entire rent paid or due for the year covered by the report. In this connection, the agent should see that answer to Inquiry 8 as to "rent of factory or works" harmonizes with the answer to the first item of Inquiry 2, as to capital.

84. Taxes.—Internal revenue is a Federal tax and will be reported for practically all industries, and the value of the products reported in answer to Inquiry 10 should include the amount of this tax. The internal-revenue tax refers to manufactures during the year covered by the reports, and agents are directed to see that it is so reported.

All state, county, or city taxes, licenses, etc., for the year, whether paid or due, must also be reported.

INQUIRY 9.—MATERIALS, MILL SUPPLIES, AND FUEL.

85. Definition of materials used.—The answer to this inquiry should give the cost of all materials and mill supplies of every descrip-

tion, whether raw or partly manufactured, and whether entering into the products, used as containers, or consumed during the year in the process of manufacture.

86. Materials used during year desired.—Note especially that what is desired is the cost of the materials, mill supplies, and fuel actually used during the year. The cost of materials purchased during the year might be entirely different. If the books do not show directly the cost of the materials consumed during the year, it may be computed by adding to the amount paid for materials purchased during the year any decrease in the inventory of materials on hand at the end of the year as compared with the beginning, or by deducting the increase in such inventory.

If the books of the establishment do not show the value of the materials on hand at the beginning and end of the year, but do show the cost of all these articles purchased or acquired during the year, and it is reasonably certain that there is no substantial difference between the values on hand at the beginning and at the end of the year, the figures showing the cost of materials acquired during the year may be used in answer to this inquiry.

The first method, however, should be employed whenever possible. If the latter method is used, the fact should be stated on the margin of the schedule.

87. Materials manufactured and used by same establishment.—Materials and mill supplies produced by the establishment itself during the year covered by the report and used by it in its further operations must not be duplicated by being again reported in its new form as material. An illustration of this may be found in the manufacture of textiles, where yarn may be shown as material, but should not include any that was made during the year by the establishment reporting and used in further manufactures by the establishment, since its cost will already have been reported in the raw material and labor connected with its manufacture. If, however, the mill manufactured more yarn during the year than was used as materials, the excess should be reported as a product.

If the establishment manufactured certain materials during the year both for its own use and for sale, that part used should not be included, for the reason just given, but that part produced for sale, or not used, should be included as a product in answer to Inquiry 10 of the General Schedule.

Where materials are obtained from another plant operated under the same ownership and for which a separate schedule is required, they should be reported as products in the establishment producing

them, and as materials in the establishment acquiring them for further manufacture. The value assigned such materials by the factory using them should be their cost as shown on its books. If, however, no charge is made on the books, an estimate of the market value of the material at the works consuming it should be made and indicated as an "estimate." For example, a concern may own a wood-pulp mill in one state and a paper mill in another state, using the pulp from the pulp mill. If the paper mill is charged for the pulp, either at cost or at a market value or an arbitrary value, the figure actually charged should be used; otherwise, the estimated market value of the pulp delivered at the paper mill.

In all cases of such transfer of products from one establishment to another establishment under the same ownership or general management, and where the two are not treated by their owners or operators as independent establishments, with independent operating accounts, give, under the head of "Remarks," such information regarding the legal and working arrangements of the two establishments, and particularly the financial system followed in the utilization by one establishment of the products of another related one, as will enable the office to determine the nature of this relationship and assure itself that the method followed in filling the schedule for one of the establishments harmonizes with that followed in the schedule for the other, as the reports may be secured by different agents.

88. Cost of fuel.—Include with "materials" as called for, the cost of all fuel used, whether for heat, light, or power, or in the process of manufacture, as in the case of coal used in gas plants. There are some establishments which use coal for producing coke or gas which they subsequently burn, and which may have records of the quantity and value of coke or gas consumed, as well as of the coal. In such cases report under Inquiry 9 on the General Schedule only the cost of the coal consumed (see also instructions for Inquiry 12, par. 107).

89. Freight on materials.—In many cases the cost of the materials will include the freight. If this is not the case, the total amount so paid should be given as called for under Inquiry 9. Do not here include freight on finished products.

90. Rent of power.—Include the total expenditure during the year for power rented from other establishments, whether by direct shafting or belting transmission, steam, electric current, or other method. The cost of gas and electricity for lighting should not be included with rent of power, but if not shown separately from that used for power, include its cost under "Rent of power."

91. Names of principal materials used.—Name the materials as nearly as possible in the order of their importance. Specific in-

formation is required, since it will be of great assistance in the classification of the establishment and understanding of the report. In this connection reports secured for *bakeries* should always show under Inquiry 9 of the General Schedule the *number of barrels of flour used* during the year. The character of the materials should be consistent with the products reported in answer to Inquiry 10.

INQUIRY 10.—PRODUCTS.

92. Quantity and value.—The General Schedule for 1919 calls for the quantity and value of the principal products, and such information should be secured where it is practicable to do so. This does not refer, however, so far as the General Schedule is concerned to industries for which supplemental schedules have been provided calling for details as to products.

Since the General Schedule provides for the quantity and value of the principal products, "All other products manufactured during the year" called for by total value in the General Schedule, should, as a rule, represent only a small proportion of the total value of products.

Agents will be given a classification list for 1919 that will show the industries which will be reported separately. While, as a rule, all products of importance should be reported separately, special attention must be given to reporting those named on the classification list. The purpose of this list is to indicate in a general way the character of the articles covered by the several classifications. It is impracticable to do more.

When a classification is preceded by a star (*) it indicates that details as to products (and in some cases also as to materials) are called for, and must be reported on a supplemental schedule provided for that purpose. It often happens that products specifically called for on these supplemental schedules are made in small quantities by establishments whose chief products do not call for a supplemental schedule. In such cases it is essential that the quantity of such products be shown on the General Schedule by the proper unit of measure, as called for on the supplemental schedule provided for such products.

93. Production, not sales, desired.—Inquiry 10 calls for the value of the products *made* during the year, *not* the value of the products sold. The sales during the year may be considerably greater or considerably less than the value of the products manufactured during the year. Where the manufacturer has no records showing directly the products of the year, but has records showing the sales, the products for the year may be ascertained by adding to the sales the increase in the stock of finished goods (or stocks in process of manufacture) on

hand at the end of the year as compared with the beginning of the year, or by deducting from the sales the decrease in such stocks. In other words, the sales account and the inventory together would have to be consulted in order to obtain the value of the products of the year.

94. Selling value at the works desired.—The value of the products desired is not the cost of their manufacture, but the selling value at the factory or works, which generally exceeds the cost of manufacture.

95. Intermediate products.—The products of manufacturing establishments, from the census standpoint, are the products in the condition as prepared by the factory reporting. The value of intermediate products need not, as a rule, be stated in the *General Schedule* in reply to this inquiry. These so-called intermediate products may, in some instances, however, be reported. For example, a cotton or woolen mill may spin the yarn during the year from which its goods are made, and in this case the manufacture of the yarn so used would be only an intermediate process in the manufacture of cloth, and the value of this yarn although produced during the year would not show separately in this report. Should part of the yarn spun during the year, however, be sold as yarn, or remain on hand at the end of the year, it becomes a true product.

96. Exclusion of freight.—The value desired for products is the value at the works. In many cases manufacturers sell all or part of their goods delivered at distant points and themselves pay the freight. In such cases the freight charges should, if possible, be deducted from the gross receipts from sales.

97. Deduction of discounts.—Manufacturers sometimes allow large discounts from their gross or list prices. In such cases the net value obtained by deducting these large discounts should be secured and not the gross selling price. Small discounts for cash payments of time accounts are not to be considered in this connection. Products furnished to others without charge in payment of obligations or in fulfillment of agreements, like gas to a municipality for instance, should be reported under products at their estimated value. The value reported for the manufacture of gas should be the receipts, not the list price.

98. Selling departments.—Manufacturing establishments sometimes turn over their products to a selling department at a given value. This factory value may be taken as the value of the products for census purposes instead of the final amount realized by the selling department. In case the value reported represents the selling price received for the goods by the selling department, however, the number of salesmen and their salaries and commissions should be included in

Inquiries 3 and 6. In case the value given is the factory value at which the product is turned over to the selling department, such selling expenses should not be included.

99. Exceptions in certain industries.—The above general rules regarding the basis for the value of products are subject to some slight modification in a few industries, as indicated by the supplemental schedule for those industries, and before reporting the cost of materials or the value of the products on the General Schedule, the supplemental schedule, if one is used for the industry, should be consulted. In railroad repair shops, for instance, the work is not, as a rule, performed for others, nor are the products made for sale, but are for the use and benefit of the company itself. In this industry, therefore, the value of the product will represent simply the cost of production.

100. Itemization of products.—Space is left on the General Schedule for an enumeration by quantity and value of the important items comprising the total products. The total products should in all cases be taken from bookkeeping records, but the records may not always show the quantity and value of the separate items of products as desired. In such cases careful estimates for the principal items will be accepted, but the fact that they are estimates should be noted on the schedule, and the sum of the items as to values should correspond to the total. It may not be practicable to give a large number of the minor items, and in such cases these can be grouped together under "All other products manufactured during the year." No considerable portion of the value of products, however, should be reported under "All other products manufactured during the year."

101. Contract work for others.—Many establishments do work for other establishments which furnish the whole or part of the materials used. The amount received for such contract work should always be shown separately under "Products" as "Contract work on materials furnished by others."

102. Custom work and repairing.—Under "Amount received for custom work and repairing" report the amount received, or the charges, for custom work, repairing, and job work of all kinds. Contract work on materials furnished by other manufacturing establishments, however, should be reported as a separate item. (See preceding paragraph.)

103. If expenses reported exceed value of products.—It may sometimes happen that the sum of the totals of Inquiries 6, 8, and 9 is in excess of the value of the products reported for Inquiry 10. In such cases the agent must call the attention of the person furnishing the information to the fact, which may be due to a misunderstanding or to an error. If there is an error, it should be corrected. If, however,

the figures are correct, the word "Correct" should be written under the total value of products and an explanation made under "Remarks" of the conditions which caused the expenses called for to exceed the total value of products. In this connection consideration should be given to those industries which require large or small expenditures for advertising, traveling expenses, ordinary repairs to buildings and machinery, etc., that were included at some censuses prior to 1914, under the inquiry calling for "Miscellaneous expenses," but omitted on the schedule to be used in 1919.

INQUIRY 11.—POWER.

104. Power owned.—Electric motors operated by electricity generated by the establishment reporting, should be included under "Power owned."

105. Power rented.—Subdivision (*b*) must show all power used by the establishment reporting which comes from some *outside* source.

INQUIRY 12.—FUEL USED.

106. Quantity of fuel used.—The total *cost* of all fuel used must be reported in answer to Inquiry 9. Give under Inquiry 12 separate totals for the quantity of each of the varieties of fuel named. Account for the total amount of each variety used, whether for heat or power, or that consumed in the process of manufacture. The quantity of gas reported must include both natural and manufactured, the kind used being stated. When gas is purchased by a gas company to be resold, it should not be reported as fuel, but its cost should be included in the cost of materials.

107. Coke and gas made by establishment.—Some establishments make coke or gas and use all or a portion of it in its further manufacturing processes. In such cases report the total *quantity* of coal used, whether to make gas or coke or otherwise, and also the quantity of coke or gas used, but be sure to clearly indicate the quantity of coke or gas made from the coal reported.

INQUIRY 13.—REMARKS.

108. Explanation frequently required.—The instructions for several of the inquiries indicate the character of the information that should be given here. The space under "Remarks," however, is reserved, primarily, for the agent to explain unusual conditions connected with the inquiries or with the report as a whole. It is expected that such explanation will obviate the necessity of office correspondence with the establishment. Upon examining the schedule, after answers have been made to all the inquiries, the agent may detect incon-

sistencies or omissions. If it is impossible to correct them, an explanation should be given. All schedules are carefully examined in the office before they are tabulated, and explanations of inconsistencies are *indispensable* to a proper understanding of the report.

These explanatory statements should be as brief and direct as possible. At the same time they should cover all pertinent facts, and, if necessary, use should be made of an additional blank sheet.

The space under "Remarks" must not be used for correspondence or statements not pertinent to the report.

CERTIFICATE.

109. Period covered.—Wherever possible the report should cover a period of 12 months, whether the establishment was in active operation during the whole of such period or not, and the answer to this question should show the whole period covered. In case, however, the establishment has been in active operation only a small portion of the 12 months, as often happens in seasonal industries, such as canning, etc., that fact should be stated under "Remarks." In the case of establishments beginning operations for the first time during the year the answer should show the period actually covered. It should be noted, however, under "Remarks" that the data relate to an establishment which began operations during the year.

The ownership of some of the establishments canvassed may have changed hands during the year. If the present owner or operator can furnish data for the entire period, they should be obtained from him, and cover the combined operations of the establishment during the year, while under the management of his predecessor as well as under his own management. If this can not be done, the former proprietor should be located and the report for the other portion of the year obtained from him. If this is impracticable, the present owner should be asked to give such information as he possesses regarding the general character and volume of business under the former owner, its comparison with what he himself did, and the facts reported by the agent on a sheet attached to the schedule covering the present ownership.

The period covered, where possible, should be that of the year ending December 31, 1919. For some seasonal industries, such as beet sugar and cottonseed oil, the reports should relate to the seasonal year most nearly conforming to the census year. This is referred to in the supplemental schedules for the seasonal industries. In the majority of cases the data can be secured for the year ending December 31, 1919. Where, however, the business year of the establishment does not correspond to the calendar year, the data may be secured for such

completed business year as corresponds most nearly to the calendar year 1919.

110. **Signatures required.**—Each report should be signed by the person responsible for the information furnished, with his official title and address. The agent who secures the return must also sign this certificate. In all cases where a supplemental schedule accompanies the General Schedule the attention of the person signing the schedule must be called to both, as he certifies to the correctness of the statistics contained in each.

SUPPLEMENTAL SCHEDULES.

111. **List of supplemental schedules.**—In addition to the General Schedule, the following supplemental schedules must be prepared for each of the industries indicated:

(The schedules marked with an asterisk (*) will be used in conjunction with the Geological Survey.)

102. Agricultural implements.
103. Aircraft.
104. Ammunition, firearms, ordnance, and accessories.
*169. Antimony smelters.
105. Automobiles.
106. Beet-sugar factories.
107. Boots and shoes.
108. Brass, bronze, and copper products.
109. Butter, cheese, and condensed-milk factories.
110. Buttons.
111. Cane sugar.
112. Cane-sugar refining.
113. Canning and preserving, fish and oysters.
114. Canning and preserving, fruits and vegetables.
*170. Carbon black from natural gas.
115. Carriages and wagons.
116. Cars, steam and electric railroad.
117. Cast-iron pipe.
*171. Cement.
118. Chemical manufactures.
120. Chocolate and cocoa products and confectionery.
*172. Clay products.
119. Coal-tar chemicals.
*173. Coke (other than in by-product coke ovens and gas house coke).
*174. Coke and by-products in by-product ovens.
*175. Copper refineries.
*176. Copper smelters.
121. Cordage and twine, jute goods, and linen goods.
122. Cotton manufactures.
123. Cotton lace goods.
124. Cottonseed products.
125. Druggists' preparations and patent and proprietary medicines and compounds.
126. Dyestuffs and extracts—natural.
127. Electrical machinery and apparatus.
128. Engines.

129. Essential-oil factories.
130. Explosives.
131. Ferroalloys.
132. Fertilizers.
133. Flour, feed, and grist mills.
134. Gas, manufactured.
135. Glass works.
136. Glucose and starch factories.
*177. Grindstones, oilstones and whetstones, pulpstones, scythestones, hones, and rubbing stones.
138. Ice, manufactured.
139. Iron and steel, blast furnaces
137. Knit goods.
*178. Lead refineries.
*179. Lead smelters.
141. Leather gloves and mittens.
142. Leather, tanned and curried.
*180. Lime.
143. Lumber and timber products.[1]
144. Machinery.
145. Machine tools.
146. Motorcycles and bicycles.
147. Musical instruments.
148. Needles, pins, and hooks and eyes.
149. Oilcloth and linoleum.
150. Paints and varnishes.
151. Paper and pulp.[2]
152. Pulp wood consumed (card).
153. Petroleum refining.
154. Phonographs, graphophones, and talking machines.
*181. Potash materials.
155. Printing and publishing.
156. Railroad repair shops, steam and electric.
157. Rice, cleaning and polishing
158. Rubber goods.
*182. Salt works.
*183. Sand-lime brick.
159. Shipbuilding.
160. Silk manufactures.
161. Slaughtering and meat packing.
162. Soap.
140. Steel works and rolling mills.
163. Textile machinery.
164. Tin-plate and terneplate works.
*184. Tin smelters.
165. Turpentine and rosin.
166. Wire.
167. Wood distillation.
168. Wool manufactures.
*185. Zinc smelters.

For a number of these industries there will be comparatively few establishments reported, and all agents may not be given a full supply of all the supplemental schedules. Request must be made for additional schedules if required.

112. Object of supplemental schedules.—The supplemental schedules are designed to develop statistics peculiar to the different industries; therefore the inquiries are not uniform. A number of them carry special instructions in regard to their preparation and the preparation of the General Schedule to which they relate. These instructions must be carefully considered, but the following general principles will apply to all:

[1] E. S. and W. S. (See par. 37.)
[2] Mills making wood pulp must also prepare card schedule "Pulpwood consumed."

(*a*) The supplemental schedule or schedules must in every instance accompany the General Schedule to which they relate.

(*b*) When two or more of the industries for which supplemental schedules are provided are carried on by the same establishment, and it is practicable to secure for each industry complete separate reports in the General Schedule, they should be secured, each being accompanied by its proper supplemental schedule. If this is impracticable, one report should be made on the General Schedule for the entire establishment (see pars. 45 to 49) and separate reports on the supplemental schedules for the different departments. In all cases the total value of products on the supplemental schedules must equal the total on the General Schedule to which they relate, except when supplemental schedules are used solely to develop the minor products of industries. A few illustrations will serve. A machine shop, for which only the General Schedule is provided, may make as minor products certain articles—agricultural implements, or certain kinds of machinery, for instance—that are called for in the supplemental schedule for these products. In order, therefore, that the office may have a complete report for such products, the supplemental schedule for "agricultural implements" or "machinery" must be prepared, but in cases where these products are of small importance compared with the total reported, the requirement as to value of products in the general and supplemental schedules agreeing is void and no separate General Schedule for the products to be reported on the supplemental schedules is required. An agricultural-implement establishment, for which a supplemental schedule is provided, may manufacture minor products not covered in detail by the supplemental for that industry, but called for in the supplementals for other industries, such as "Carriages and wagons" or "Engines," and the proper supplementals should be provided and filled. Fertilizers and soap are frequently by-products of slaughtering establishments and are included among the products on the supplemental schedule for that industry, but separate supplemental schedules—"Fertilizers" and "Soap"—for each should also be prepared. The use of supplemental schedules in such cases is essential and must be obtained.

(*c*) The statistics reported on the supplemental schedules will be published only by state totals; therefore it is not absolutely necessary to obtain separate reports on the supplemental schedules for establishments in different sections of the same state engaged in the same industry and operated under the same ownership. For example, if a company owns two cotton mills, one located within and the other just outside the corporate limits of a city having 10,000 or more inhabitants,

separate reports must be made on the General Schedule (see par. 47), while one supplemental schedule may carry the statistics for both plants if desired. In such cases the schedules must be fastened together and accompanied with a memorandum of explanation.

(*d*) A number of the supplemental schedules call for the quantity of the principal materials used and the quantity of products. Where this condition exists, agents must assure themselves that the kind and quantity of materials used is consistent with the kind and quantity of the products. For instance, in the manufacture of butter or cheese, that the quantity of milk or cream used harmonizes with the quantity of butter or cheese produced, or in the manufacture of flour, meal, etc., that the kind and quantity of grain reported is consistent with the kind and quantity of the products.

113. Administrative and general office schedule described.—Some companies control a number of factories, mines, or quarries from a central office, and do not make a distribution of capital, expenses, etc., for the different plants. In such cases the capital of the company as a whole, the employees at the central office, their salaries and wages, and the taxes which are not included in the reports for the separate plants, must be shown in a report prepared on Form 101. The inquiries on this schedule correspond with the inquiries on the same subjects in the General Schedule for manufactures, and the instructions given for them should be followed. *Be careful not to duplicate any of these amounts in the reports for any of the separate plants.*

MINES AND QUARRIES AND PETROLEUM AND NATURAL GAS WELLS.

GENERAL INSTRUCTIONS.

114. Instructions for census of manufactures apply.—All of the instructions in regard to methods and practices to be followed by the field force in collecting statistics of manufactures apply equally to the collection of statistics of mines, quarries, mineral reduction mills, and petroleum and natural gas wells, except as noted in the instructions which follow. These instructions are additional and for the purpose of covering certain special features of the schedules for these latter industries.

115. Verification of name and address of company.—In a number of cases the lists and index cards give only the name of the mine or the name and address of the mine superintendent or manager. The agent must, in such cases, inquire as to the name and address of the operating or owning company and secure the report from the mine office or the company office, if in his district. If the agent finds that the report can not be secured within his district, he must report the fact as instructed in paragraph 12.

In case of mines and quarries agents must exercise special diligence in conformity to instructions in paragraph 12, concerning the verification of the name and address of the person who will furnish the information, if not available at the mine.

116. Unit of enumeration.—The mine, mineral reduction mill, quarry, well, or group of mines, quarries, or wells, all in the same district or territory and owned or operated by one and the same operator, is the unit of enumeration, corresponding with the establishment for manufactures, and the instructions, paragraphs 44 to 47, concerning separate reports for establishments must be followed.

117. Mines, mills, quarries, and wells to be reported.—All classes of mines, quarries, and petroleum and gas wells that were in operation during any portion of the year (including those operated by penal, eleemosynary, and educational institutions) except as set forth in paragraph 118, must be reported.

118. Operations to be omitted from the census:

a. Mines, mills, quarries, or wells that were idle during the entire year.

b. Small bituminous coal banks producing less than 1,000 tons annually.

c. Itinerant individual placer gold miners and miners hunting for precious stones who employ no help.

d. Prospectors.

e. The digging or dredging of sand and gravel for the construction of roads and for building operations or other purposes.

f. Natural mineral waters.

g. The digging and preparation of peat.

h. The digging and preparation of marls, both calcareous, and greensand.

i. Mining of minor and rare minerals such as strontium ores, monazite, zircon, etc., unless conducted as part of an established industry producing other mineral products.

119. Development work to be reported.—Mines at which development work was carried on during the year must be reported whether or not there was production. (See par. 134.)

120. Mining and manufacturing.—There are several branches of mining and quarrying in which the mineral products do not reach the market in the crude condition, but are subjected to certain manufacturing processes at the mine or quarry, such as cutting, crushing, separating, washing, burning, calcining, or concentrating, before being regarded as marketable commodities. In such cases the general and supplemental mining schedules should cover the entire work of mining the crude material and its preparation for the market. There are some exceptions to this general rule to which special attention is called:

Clay mining and clay products.—The mining of clay and the manufacture of clay products are generally carried on in the same establishment; in such cases the entire operations should be reported on the general and supplemental schedules for manufactures. Only where the clay is mined and sold as such, and no manufacturing done, is a report to be made on the general and supplemental schedules for mines and quarries.

Limestone and lime.—The quarrying of limestone and the burning of the stone into lime are usually done by the same establishment, and the entire operations should be reported on the general and supplemental schedules for manufactures; but where limestone is also quarried and sold as such a report in detail for such stone should be made on the mines and quarries supplemental limestone schedule (Form 223), and for the lime on the manufactures lime schedule (Form 180). Where limestone is quarried solely for sale or use other than burning into lime, reports should be made only on mines and quarries general and supplemental schedules.

Natural-gas gasolene—Natural-gas gasoline, or casing-head gasoline, is made at the gas or oil well and the entire operations should be reported on the General Schedule for petroleum and natural gas and the supplemental schedule for natural-gas gasoline. Gasoline made

from petroleum by distillation should be reported on the general and supplemental schedules for manufactures.

Salt mines and plants producing salt from sea, lake, or well brines.—Salt in some localities is obtained by mining rock salt, but for the most part it is produced from brines and in any case the raw material is converted by manufacturing process, by the producer, into marketable products. All salt manufacturing operations including preliminary mining, if any, should be reported on the General Schedule for manufactures and on supplemental manufactures schedule for salt works (Form 182).

121. The milling of minerals and earths.—The following mineral and rock products are generally subjected to some process of preparation for market at the mine or quarry by the mine or quarry operators:

Abrasive materials, *Supplemental Form 201.*
Asbestos, *Supplemental Form 204.*
Barytes, *Supplemental Form 206.*
Clays, including kaolin, *Supplemental Form 212.*
Feldspar, *Supplemental Form 214.*
Fluorspar, *Supplemental Form 215.*
Fuller's earth, *Supplemental Form 216.*
Graphite, *Supplemental Form 219.*
Gypsum, *Supplemental Form 220.*
Magnesite, *Supplemental Form 224.*
Mica, *Supplemental Form 227.*
Natural mineral pigments, including ocher, etc., *Supplemental Form 229.*
Silica, including flint and quartz, *Supplemental Form 236.*
Talc and soapstone, *Supplemental Form 239.*
Whiting or chalk, *Supplemental Form 223* (*Limestone.*)

For establishments where finishing operations—trimming, crushing, concentrating, cleaning or washing, grinding, grading, and calcining, roasting or burning—on mine or quarry products are conducted by the mine or quarry operator as a part of, or closely associated with, the mining or quarrying, a General Schedule for mines and quarries should be used and the proper "mines and quarries" supplemental, as indicated by the form numbers for the various schedules.

Establishments which do not operate mines or quarries, but manufacture prepared products from purchased crude material must be reported on the General Schedule for manufactures.

For an establishment which mines or quarries, prepares the raw material, and then uses it in further manufacture—for example, sandpaper manufacturers who use quartz or garnet produced in their own quarries to manufacture abrasive papers; paint manufacturers who mine ocher, etc., and then grind the pigment in oil in the manufacturing of paint—a report should be made on the General Schedule for manufactures and a report, for the details of the quarrying or mining.

on the proper mines and quarries supplemental. If it is possible, in case of an establishment of this kind, to separate the mining and manufacturing operations, this should be done and segregated reports secured on the General Schedules for manufactures and for mines and quarries.

GENERAL SCHEDULES FOR MINES AND QUARRIES AND FOR PETROLEUM AND NATURAL GAS.

122. General Schedule required for each mine, quarry, mineral reduction mill, well, or group of wells.—These schedules (Forms 200 and 300) correspond to the General Schedule for manufactures, and all mines and quarries and mills engaged in dressing and reducing mineral products must be reported on the schedule for mines and quarries (Form 200) and each petroleum or natural gas well or group of wells on the schedule for petroleum and natural gas (Form 300). The general instructions in paragraphs 52 to 110 must be followed as far as applicable in the preparation of reports on these schedules. Care should also be taken to follow the instructions contained in paragraph 50 concerning the separation of the values represented by the mining industry from those for other industries carried on in connection with the mines. Special attention is called to the following inquiries, which differ in important respects from those on the schedule for manufactures, and for which some additional information may be of assistance in preparing the reports.

INQUIRY 1.—DESCRIPTION OF ESTABLISHMENT.

123. Name.—Special inquiry and effort should be made to secure the name of mine, quarry, or mill, for although many do not have such name distinct from that of owner or operator, most of the older important mines, quarries, and mills, or groups of them have distinctive names.

124. Location of mine and quarry.—The location of mines, quarries, and wells in remote or unsettled regions and not in incorporated cities or towns should be made by reference to *nearest* city, town, railroad station, or post office. A location by township, range, section, and quarter section, if known, should be obtained and reported whenever possible on both the general and supplemental schedules.

INQUIRY 2.—CAPITAL ACTUALLY INVESTED AND AREA OF MINERAL AND OTHER LANDS.

125. Capital.—Subdivision and itemization of capital, as in the manufactures schedule, is not called for on the mines and quarries schedule. Only the total is wanted, but agents should make sure that items specified in the manufactures General Schedule are included.

126. Lands.—Include all lands as actually pertain to mining, quarrying, milling, or oil and gas producing properties covered by the schedule. This should cover not only lands held in fee, but also unpatented public land "claimed" for mineral, oil, timber or other rights, also rented lands and rights, patented or unpatented, lands held for tunnel, drainage, power, and mill sites, and transportation privileges, pertaining to the operations covered by the schedule.

INQUIRY 4.—WAGE EARNERS, INCLUDING EMPLOYEES PAID BY TON, CAR, YARD, OR OTHER UNIT.

127. Number of classes.—The mines and quarries General Schedule calls for separation of the number of employees engaged in different classes of labor and also of the number employed above and below ground. This separation can usually be made from the pay roll, but if not, effort should be made to get careful estimates (from mine managers or superintendents directly, or through reporting offices). In every case of schedules covering both mining or quarrying proper, and milling or finishing operations, separation of number of employees according to these major lines must be sought.

128. Labor indirectly employed.—It is desired to account for the total number of persons employed in or about the mine, quarry, or wells, and care must be taken, therefore, to report the number employed by contractors, lessees, etc. While this number can not be obtained from the operator's pay roll, he should be able to give an estimate, and this may be accepted unless the exact number can be obtained from the contractor. (See par. 130.)

Miners compensated by share of product may not appear on the regular pay roll as wage earners. Some record, however, is undoubtedly kept of such persons, and the number should be ascertained and included with the total number reported as "employed otherwise, as by contractors, etc." This number should, of course, include the persons employed by the block lessees, leasers, etc. (See par. 131.)

Inquiry should also be made as to whether any females are employed in and about the mine or quarry, and the number must be given as called for in Inquiry 4.

INQUIRY 6.—SALARY AND WAGE PAYMENTS.

129. Net amount required.—In addition to the instructions contained in paragraphs 76 to 80 for the answer to this inquiry, attention is called to the fact that the net amount paid in wages must be reported. In many branches of the mining industry the mine worker is required to furnish his own explosives, fuel, etc. Very often the supplies are

procured for him by the operator and the cost is charged to him and deducted from his wages. If the pay roll shows the gross wages, the amount charged for supplies, and the net balance paid, the net amount only should be reported. If the pay roll shows only net wages paid after subtracting the cost of supplies, report the amount so stated. If the pay roll shows only gross wages paid, a separate account of explosives and other supplies sold to miners being kept with each employee by the company's store, the amount so charged should be subtracted from the total gross wages in order to obtain the net wages.

If the charges for explosives and other supplies appear neither on the pay roll nor elsewhere as a separate account, an estimate of the amount should be obtained from the operator and deducted from gross wages.

The amount charged to miners for explosives, lamp fuel, and other supplies and deducted from gross wages in computing the net wages must be included in the amount reported for cost of materials and supplies under Inquiry 9 (first item).

130. Contract miners.—A contract miner is one who undertakes to mine coal or other mineral products at a stipulated price per ton, car, or yard, with the help of men engaged and paid by him, either by the same unit or by the day or week, out of the total amount he receives.

131. Miners and others compensated by share of product.—In the Kansas-Missouri lead and zinc mines and in the Colorado silver-lead mines, and possibly in some other cases, there are, in addition to the regular wage earners employed by the day or by the task, special classes of labor designated as "leasers," "block lessees," "tributers," etc. Technically, they "lease" from the operator a block in the mine and "pay" a stipulated royalty. In reality all the ore hoisted is usually delivered to the operator and marketed by him or shipped in his name to the sampler or smelter, and the operator retains his royalty or authorizes the ore buyer to withhold the same, and pays to the "lessees" their share of the proceeds. In all cases these workers furnish their own mine supplies. While resembling in form an ordinary mining lease, this is in substance a contract of employment on a share of the product.

This class of miners is seldom, if ever, included in the general pay roll. A separate account will, as a rule, be kept with them, from which their compensation must be ascertained. In some cases the books of a mine owner will show nothing but the royalty obtained by him as an item of income; in that case the compensation of the miners will have to be computed from the rate of royalty received by the

operator. For example, if the operating company has credited its income account with $10,000 as royalties, and the rate of royalty received by it is 20 per cent of the product, then the share received by the mine worker should be 80 per cent, i. e., $40,000; in that case $40,000 should be reported in answer to this inquiry as the amount paid to miners compensated by share of product.

132. Amount paid for contract work.—The work referred to here is of a more or less casual nature, for example, tunneling, shaft sinking, boring test holes, etc. It is quite distinct from mining proper done by contract miners, which is incident to the regular operation of the mine.

INQUIRY 8.—MISCELLANEOUS EXPENSES.

133. Rent and royalties.—In addition to the instructions in paragraph 83, attention is called to the fact that the amount paid for rent includes the amount paid for royalties. "Rent" is a fixed amount paid monthly or annually for the use of land, plant, tunnel, and other property. "Royalty" is a stipulated share of the product of the mine usually paid for the privilege of mining, and sometimes also in lieu of rent of plant, equipment, etc.

134. Development work.—The extension and improvement of the mine usually goes on with the regular mining, and sometimes it is not easy to draw the line between development work and mining; for example, where ore is extracted from the ground incident to sinking a shaft or boring a tunnel. As a rule, however, a portion of the expenses will be charged on the books to development, the balance representing the expense of operation.

In answer to this inquiry the total amount should be reported which was charged during the year to development.

SUPPLEMENTAL SCHEDULES.

135. Cooperation with Geological Survey and Bureau of Mines.—To avoid duplicate inquiries, the Geological Survey and the Bureau of Mines, which collect annual statistics relating to the mineral industries, and the Bureau of the Census, have made arrangements for the joint use of the data collected on the general and the supplemental schedules. The supplemental schedules must accompany the General Schedule in the same manner as the supplemental schedules for manufactures accompany the General Schedule for those industries. (See pars. 112 and 113.) The specific information for the Geological Survey and the Bureau of Mines is carried on the supplemental schedule, and therefore a supplemental schedule or schedules must accompany every General Schedule.

136. Application of supplemental schedules.—As is the case with manufactures, it will be necessary in some cases to prepare more than one supplemental schedule for the mines and quarries reported on a single General Schedule. (See par. 112b.) Some of the supplemental schedules enumerate all the mineral products produced in connection with the principal product, with instructions to report the details of the minor products or by-products on the same or other supplemental schedules. All of the minor products or by-products could not be provided for, and the agent must see that the statistics of production correspond to the data on the General Schedule.

In the case of those supplemental schedules which call for agreement of total value of products with total value of products in Inquiry 10 of the General Schedule, there must be exact agreement of the total values and either proper correspondence of the items entering in the totals or adequate explanation when elements of the totals are differently itemized on the two schedules. Total value of products is not required by many of the mines and quarries supplemental schedules, the schedules in those cases stating that "the total value of products is to appear on the General Schedule for mines and quarries." These supplemental schedules provide primarily for a report on quantity produced, and, in most cases, also quantity and value of sales in 1919. Total sales may, by reason of accumulation of stocks or withdrawal from stocks during the year, differ more or less from the actual production of the year. The data required on the supplemental will, however, generally make it possible to reconcile the "value of ore, mineral, or stone" on the General Schedule with the total quantity produced as reported on the supplemental schedule, and the agent must see that there is a satisfactory agreement.

137. List of supplemental schedules.—In addition to the general schedule for mines and quarries and the special general schedule for petroleum and natural gas wells, the following supplemental schedules have been prepared for mines, quarries, and petroleum and natural gas wells:

MINES AND QUARRIES.

Form number.	
201.	Abrasive materials (miscellaneous).
202.	Anthracite (Pennsylvania).
203.	Antimony ores.
204.	Asbestos.
205.	Asphalt and allied substances.
206.	Barytes (crude).
207.	Basalt (trap rock).
208.	Bauxite.
209.	Bituminous coal.
210.	Bituminous coal (local commercial).
211.	Chromite (chrome ore).
212.	Clay (mines).
213.	Copper mines (Lake).
214.	Feldspar.
215.	Fluorspar.
216.	Fuller's earth.
217.	Gold, silver, copper, lead and zinc, deep mines.
218.	Granite.
219.	Graphite.
220.	Gypsum and gypsum products.
221.	Iron ore.
222.	Lead and zinc mines.
223.	Limestone and dolomite.
224.	Magnesite.
225.	Manganese and manganiferous ores.
226.	Marble.
227.	Mica.
228.	Millstones and chasers.
229.	Natural mineral pigments.
230.	Placer and surface mines.
231.	Phosphate rock.
232.	Pyrite.
233.	Quicksilver.
234.	Rare metals.
235.	Sandstone.
236.	Silica (quartz).
237.	Slate.
238.	Sulphur.
239.	Talc and soapstone.
240.	Tin ores.

PETROLEUM AND NATURAL GAS.

Form number.	
301.	Petroleum.
302.	Natural gas (A).
303.	Natural gas (B).
304.	Natural-gas gasoline.

The inquiries on the supplemental schedules are direct, and as a rule require no explanation, but special attention is called to the following:

138. Abrasive materials (Form 201).—This schedule is to be used for reporting emery, corundum, garnet, tripoli, rottenstone, diatomaceous earth (otherwise known as tripoli, tripolite, infusorial earth, Kieselguhr, or fossil flour), pebbles used in tube mills for grinding, tube-mill lining, and pumice. *A separate supplemental report must be made for each kind of product.* In Alexander and Union Counties, Ill., some producers of material classed as tripoli by the Geological Survey

insist that their product is silica. Report may be taken on the silica schedule (Form 236), but for sake of uniformity and comparability of records use of the abrasive schedule is preferred.

139. Anthracite coal.—The supplemental schedule (Form 202) on anthracite is to be used *only for Pennsylvania* anthracite operations. Coal in other regions, notably northwestern Arkansas and some locations in Colorado, commonly designated anthracite, is for statistical purposes classed as bituminous by the Census Bureau and the Geological Survey. The unit of enumeration is the breaker or washery. Nevertheless, a full list of mines supplying coal to each breaker *must* be obtained. Inquiry 2 of the supplemental requires full days in operation, parts of days to be reduced to equivalent full days, and does not call for the same reply as Inquiry 7 of the General Schedule, which requires number of all days in which there was any productive activity or development work. Inquiry 3 of the supplemental is for determining from the whole number of employees on the pay rolls for the year, whole and part time, an equivalent number of full-time employees. The mine operators should be asked to determine this figure by the same method used in reply to the Geological Survey's regular annual canvass.

140. Bituminous coal.—Two forms of schedule have been provided. The longer (Form 209) is to be used, so far as possible, for reporting all bituminous-coal mining operations. But smaller operations, for which detailed information required by Form 209 can not be obtained, may be reported on Form 210, which is designed for use of small mines not using mining machines and normally producing less than 3,000 tons, chiefly for local commercial use. Small coal banks not employing regular mine labor and producing less than 1,000 tons annually are excluded from the census canvass. Coal mines of larger producing capacity which produced less than 1,000 tons because recently opened, or developing, or because of adverse conditions during 1919, or other reasons, must be reported.

Concerning inquiries on time in operation and number of employees, see paragraph 139 on anthracite coal.

Lignite is for purposes of the census to be reported as bituminous coal.

141. Fluorspar.—At a few mines in Kentucky and Illinois where fluorspar is crushed and cleaned by concentration, silver-bearing lead concentrates are recovered. The quantity of these concentrates should be entered in reply to Inquiry 1, fluorspar supplemental schedule (Form 215), in the form of an additional item (*d*), and the net value of these concentrates should be included with the value of products reported on the General Schedule. Furthermore a report on the silver-

bearing lead concentrates should be secured on Form 222. For instructions concerning this form, see paragraph 145.

142. Manganese and manganiferous ores.—This schedule (Form 225) applies only to mines which produce ore used for its manganese content. If the ore contained silver in paying quantities, it is to be regarded as a silver ore and should be so reported on Form 217.

143. Placer and surface mines.—The gold product of placer mines is not fine gold. The ounces are crude ounces. But the fineness of the gold fluctuates within narrow limits and the miner, as a rule, knows the average fineness of the gold from his mine. The mint value of an ounce of fine gold is $20.67; the value of a crude ounce varies with the fineness of the gold.

In dredging for gold a record is kept, as a rule, of the quantity of material or volume of the ground handled. The quantity being determined by the capacity of the dredge, it can easily be calculated, even where no record is kept.

Under other methods of working a commercial company will keep a record of the quantity of material handled or of the average recovery of the gold per cubic yard. The average recovery can be used as a basis for estimating the quantity of material handled.

144. Gold, silver, copper, lead and zinc, deep mines (Form 217).—This schedule applies to all mines producing gold, silver, copper, lead, and zinc ores, and manganiferous ore carrying precious metals, except the Lake Superior copper mines and the nonargentiferous lead and zinc mines of the Central and Eastern states. (See pars. 147 and 145.) Manganese ores and manganiferous iron ores used only for their manganese and iron content are to be reported on the supplemental schedule entitled "Manganese and manganiferous ores" (Form 225). Separate schedules are provided for the Lake Superior copper mines (Form 213) (see par. 147) and for the lead and zinc mines (Form 222) (see par. 145), whose product carries no precious metals in paying quantities. The items of prime importance on the schedule for deep mines (Form 217) are replies to Inquiries 1, 2, 10, and 11, which must accurately give the quantities of ore sold or treated, the quantities of each kind of concentrates sold or treated, and the assay of each class of ore and concentrates.

The deep-mines schedule (Form 217) does not require a report on the total value of the mine product as such. Inquiry 2 calls for the gross value of metals contained in the ore produced and treated, which is determined in accordance with well-established trade custom by sampling and assaying the ore, and the gross value per ton is determined for each of the metals present in accordance with the assay content.

The sum of these is the gross value required on the supplemental schedule. The net amount received by the mine operator for the product disposed of is the value of ore product required in Inquiry 10 of the General Schedule, and represents the net value of the ore at the mine. This is arrived at by deducting from the gross value of the metal content certain losses in treatment and costs and charges for converting the ores, through milling and smelting operations, into marketable products. These deductions include the following:

a. Haulage and freight.—Very frequently the ore has to be hauled from the mine to a railway station or a mill. The cost of haulage when borne by the mine operator should be deducted from the gross value of the ore. Freight to mills and smelters is generally paid by the works or the buyers, and is deducted from the gross value of the shipments. The cost of freight and haulage per ton usually remains uniform for each mine and can be accurately stated.

b. Penalties.—Sometimes zinc or other metals in the ore are not paid for by the mills and smelters, and also the ores are sometimes penalized for certain impurities in them. Metals not paid for and penalties must be deducted from the gross value.

c. Treatment charges.—Some ores are shipped direct to the smelters but more commonly they are "milled" either for extraction of mill bullion—if free milling—or for concentration to reduce bulk in further freighting to, and handling in, smelters, or they may be milled for both bullion and the making of concentrates. The gross value of bullion and of concentrates is determined by assay, the same as for ores. Mill bullion may be returned to the mine operator and by himself sold to the mint or banks, or it is sold for him by the mill. In either case he is charged with mill treatment costs, which must be separately accounted for and deducted from the gross value of the bullion for arriving at the net value to be reported on the General Schedule in answer to Inquiry 10. In the latter case selling expenses and commissions should also be deducted. There are also similar treatment and selling costs for concentrating which should be similarly accounted for and deducted from the gross value of concentrated product sold or shipped to smelters.

145. Lead and zinc mines (Form 222).—This supplemental schedule is to be used for lead and zinc mines in the Central states—Illinois, Kentucky, Wisconsin, Missouri, Oklahoma, Kansas, and Arkansas—and also the nonargentiferous mines of the Eastern states—New Jersey, New York, Tennessee, and Virginia—but not for the few copper producing mines in Missouri and the lead and zinc mines in New Hampshire, Vermont, and North Carolina, which are to be reported on the other metal mines schedule (Form 217).

As a rule, the mine is combined with a concentrating mill of some sort; the schedule accordingly combines inquiries in relation to both mine and mill. The smaller mines, which have no facilities for milling their ore, have the same treated on toll at, or by outright sale to, a custom mill in the neighborhood; Inquiry 1, (*c*), (*d*), and (*e*), is intended to cover such cases. On the other hand, a mill connected with a mine sometimes treats ore from another mine for a stipulated compensation per ton; such cases are covered by Inquiry 2.

Custom mills in the Central states which do not belong to any mine, but operate exclusively on custom or purchased ore, should be reported on the supplemental schedule for lead and zinc mines (Form 222) by answering Inquiries 2, 3, and 5 (*g*), and the report should show that the ores handled were purchased or treated on toll. There should be appended a list showing for each mine or mine operator from whom ore was obtained the quantity (tons, 2,000 pounds) of ore, the quantity of concentrates recovered and sold, and the average assay of concentrates.

In the lead and zinc mining region of the Central states the system of tenure of mineral land results in the splitting up of the mining operations among several parties; the mineral land may be owned by one company, the mine developed by another, the mill owned and operated by a third, and the ore mined by a fourth. Usually the product is sold by one party, which retains its share of the proceeds and pays over the balance to the others. In all these cases a full report must be obtained, if possible, from each operating party, but care must be taken that each reports as his own product only the actual quantity of ore mined or treated by him; or if not possible, as complete a report as can be made must be obtained from the landowner or lessee to whom royalties are paid.

146. Reduction mills.—A special schedule has not been provided for ore-reduction mills operated as custom mills (in some places called sampling works). The operations of such mills in connection with metal mines will be included in the report on the schedule for "Gold, silver, copper, lead and zinc, deep mines" (Form 217), and in the report on the schedule for "Lead and zinc mines" (Form 222). In the case of a custom reduction mill operated independently of a mine, a report should be made on the General Schedule for mines and quarries and on the metal mining schedule appropriate to the region, with a statement that all the ores handled are purchased or treated on toll, and there should be appended a list of principal shippers to the mill and the quantities of ore from each.

For methods of valuation of ore and concentrates, see paragraph 144.

147. Lake copper mines.—In the Lake Superior region the crude product of the copper mines is locally called "rock." As a rule, every copper mine in the Lake Superior region is equipped with a mill for dressing the rock; i. e., for removing the worthless material attached to the copper. The product of rock dressing is locally called "mineral." The latter is then treated at a smelter where marketable "lake copper" is produced. If the copper contains silver in paying quantities, it is sent to an electrolytic refinery, where the silver is separated from the copper; the latter is then called "electrolytic copper." The larger mines are equipped with smelters or refineries where their product is treated. The smaller operators either sell their mineral to smelters or have it treated for their account at a custom smelter or refinery. If the mineral is sold, its value is determined in the same manner as that of gold, silver, copper, lead, and zinc ores in other regions (see par. 144); if it is treated at a custom smelter or refinery and the metallic product is marketed by the operator, the latter is credited with the full (gross) value of the metals produced, but the cost of treatment at custom smelters and refineries (haulage, freight, charges for treatment, including selling expenses and commissions) should be accounted for separately, and not included in the net value or amount received for mineral products. The schedule, Form 213, has been designed to cover all the operations of the Lake copper companies' mines and reduction plants, because, as a rule, these operations are conducted as a unit and the product is metallic copper. See, in regard to Lake smelters, instructions in par. 148.

148. Lead smelters, copper smelters, tin smelters, zinc smelters, and antimony smelters.—A report for every smelter must be made on the General Schedule for manufactures and on a manufactures supplemental schedule for smelters.

Where a smelter is operated in combination with a mine, separate reports are required for the mine and the smelter. If the mine and the smelter are operated jointly and only one set of books is kept covering both, a combined report may be made on the General Schedule for mines and quarries, but separate reports must be made on the supplemental schedules for the mine and the smelter.

In case of smelters operated in connection with Lake Superior region copper mines, the manufactures supplemental for copper smelters, Form 176, though apparently not applicable, must be used and is made to conform by the following instructions:

INQUIRY 1 (Form 176). Disregard the words "in blister (converter copper) or in matte," canceling same, and give the total production of fine copper.

INQUIRY 2. Omit.

INQUIRY 3. Change concentrates to "Mineral" at the head of the second column and give the tonnage treated, against the name of the state (Michigan) to be entered in the stub column.

INQUIRY 4. Give the data for slags, smelter cleanings, cinders, etc., and separately for scrap.

INQUIRIES 5 to 9, inclusive, omit.

INQUIRY 10. Substitute *refined copper* for "final product (matte or blister)" and answer inquiry.

Add the following inquiries in the space provided for "Remarks" (entering remarks, if any, at the bottom of the page):

INQUIRY 11. Amount of copper shipped to electrolytic refineries....

INQUIRY 12. Give the name of refinery.....

INQUIRY 13. Recovered by electrolytic refining:

Copper.....fine pounds.

Silver.....fine pounds.

INQUIRY 14. Remarks:.....

149. Refineries (copper and lead).—A report for every refinery must be made on the General Schedule for manufactures and on a supplemental schedule for copper or lead refineries, as the case may be. Whenever a refinery is combined with a smelter, separate reports must be secured for the refinery and the smelter. In case only one set of books is kept covering both the smelter and the refinery, a combined report may be made on the General Schedule for manufactures, but separate supplemental schedules must be prepared for each. Copper refining in the Lake Superior copper region is an integral part of smelting plant operations, and no separate refinery report can be made. Reports for such operations are covered by the special instructions in paragraph 147.

150. The stone industries—Basalt (trap rock) (Form 207); Granite (Form 218); Limestone and dolomite (Form 223); Marble (Form 226); Sandstone (Form 235); and Slate (Form 237).—Supplemental mines and quarries schedules have been prepared for the quarrying of each of these products. They are designed to cover the quarrying operations and those manufacturing operations, such as crushing and dressing (with only one exception, see par. 120 on lime), which are intimately related with and generally conducted in connection with quarrying. When an establishment is engaged in manufacturing stone products, at the quarry, in connection with the quarrying of the stone, and only one set of books is kept for the two operations, a report must be secured on the General Schedule for mines and quarries and also on the proper supplemental. Such

manufacturing at the quarry includes the preparation of stone for paving materials, for monumental and construction purposes, and for a number of minor uses. Of these minor uses, the making of millstones, for example, must be reported on the millstone supplemental (Form 228). If the product of the quarry is all sold as millstones, no other supplemental is required. The making of grindstones, etc., at the quarry, must be reported on the manufactures supplemental for grindstones, oilstones, whetstones, etc. (Form 177). Attention is called to the fact that usually the making of grindstones is a manufacturing industry and should be reported on the manufactures General Schedule; when, however, the manufacturing operations at the quarry do not to any great extent exceed hand finishing, or require an elaborate plant, a mines and quarries General Schedule should be used.

There are numerous establishments which manufacture stone products from purchased rough stone and are entirely independent of the quarries; these establishments must be reported on the manufactures General Schedule, *not* on the mines and quarries General Schedule, and no reports on the mines and quarries supplemental schedules are to be obtained for them.

151. Petroleum and natural gas.—The special General Schedule for petroleum and natural gas corresponds with the General Schedule for mines and quarries. The inquiries, however, have been framed to meet the conditions peculiar to the petroleum and natural-gas industries, but they agree so closely with those in the General Schedule for mines and quarries that no special instructions are necessary. In every instance this schedule must be accompanied by the supplemental schedule for petroleum or natural gas and for natural-gas gasoline when produced. When both products are obtained from the same well or group of wells covered by the special General Schedule, reports must be made on the respective supplemental schedules.

Two forms—supplemental schedules A and B—have been provided for reporting production of natural gas. Schedule A (Form 302) requires the greater detail as to distribution and measured output in thousands of cubic feet. Wherever possible, this form should be used and the other (Form 303) used only for reporting companies whose output is not metered and which is used largely for local domestic consumption. Form 302 separates domestic and industrial consumption. The distinction will, in general, be readily made, particularly if it be noted that although domestic consumption comprises chiefly household use there may also be included consumption in either ovens and furnaces or in gas engines by small industrial establish-

ments, such as bakers, laundries, small machine and repair shops, and the like. Industrial consumption for fuel implies, in the main, large consumption in kilns, furnaces, and engines by establishments receiving special gas service.

152. Printed reports of mining, quarrying, and oil and gas producing companies.—In cases where an annual report of the company is printed, a copy of the latest report should be secured and forwarded with the schedules. Copies should also be obtained of any other printed matter that will add to the information contained in the schedules.

SUPPLEMENTAL INSTRUCTIONS TO CHIEF SPECIAL AGENTS.

153. In charge of important districts.—The following instructions are for the special guidance of the *chief special agents* who will be given general charge and supervision over the collection of statistics of manufactures and of mines and quarries in the large cities and important industrial districts, and are additional to the general instructions for special agents.

154. Special responsibility of chief special agents.—As a large proportion of the reports for manufacturing establishments are to be secured in these districts, the success of this branch of the census work will depend very largely upon the fidelity, zeal, and ability with which these chief special agents perform their duties. They are consequently expected, not only to familiarize themselves with the schedules that will be employed and the instructions for their preparation but to learn the purpose of each inquiry, the character of information desired by the bureau, the difficulties that are likely to be encountered in collecting this information, and, generally, fit themselves so as to be able to answer all questions that may be made during the progress of the work. They are expected, finally, not only themselves to be enthusiastic in the discharge of their duties, but to spare no effort in seeking to inspire a similar enthusiasm on the part of the other agents. The chief special agent, in a word, should understand clearly that he will be held responsible for a satisfactory canvass of his district.

155. Selection and organization of force of special agents.—The first duty of the chief special agent will be that of the organization of the agents who will perform the work of collecting the statistics of manufactures and of mines and quarries in their districts.

156. Authority of chief special agents to suspend assistant agents.—If, after an agent has entered upon the performance of his duties, it appears for any reason, whether of personal misconduct, his failure to exercise due tact in approaching manufacturers so as to secure their cooperation and overcome antagonism that may exist to the canvass or disinclination to divulge information, his lack of zeal and energy, or the demonstration that he is unable to secure accurate and correct information, the chief special agent is authorized to temporarily suspend such agent from duty. He should immediately make a full report of the case to the Director of the Census and await instructions before taking further action.

157. Amount of work expected of assistant agents.—In general, the services of an assistant agent should not be deemed entirely

satisfactory unless he secure an average of four complete reports per day. Special circumstances may, of course, make this average too high or too low. If in the absence of such special circumstances, this average is not attained, the agent should be required to make a definite explanation of the reason for his failure.

158. Instructions and supervision of assistant agents.—The most important part of the duties of chief special agents is, on the one hand, to see that the assistant agents thoroughly understand their duties, and, on the other, that these duties are at all times faithfully performed. The chief special agents should thus assure themselves that all assistants under their direction have studied the schedules and instructions carefully and understand clearly all points covered by them, and that they also know how to dispose of the index cards for establishments for which reports can not be secured in their respective districts. Subsequently the chief special agent must follow closely the work of each assistant agent, and by verbal or written instructions assist him in meeting difficulties encountered, and make certain that his work is being intelligently and efficiently performed. By inquiry of agents, by personal inspection of the districts, and by interviews with representative manufacturers and others, he should assure himself that a thorough and proper canvass of the districts assigned to them is being made by the assistant agents and that the latter are devoting their entire time to their official duties.

As far as practicable, chief special agents should exercise supervision over assistant agents by personal contact and interviews with them. Where advisable, the chief special agent should see the assistant agents while at work in the district. Assistant agents working in the city where the office of the chief special agent is located should be required to report at frequent intervals, at the office, in order that the chief special agent may go over with them personally the schedules secured by them and advise with them regarding the handling of difficulties that may have arisen. Where the assistant agents work in districts at considerable distance from the office, interviews should be arranged for at such intervals of time as the circumstances require, and in such way as to involve the minimum loss of time. In such cases, however, the assistant agents should mail daily all reports secured by them to the chief special agent. Addressed official envelopes will be furnished for this purpose. In those cities where Saturday half holidays prevail it will be well for the chief special agent to arrange for assistant agents to report on the afternoon of that day for consultation and the receipt of special instructions.

159. Record cards.—Chief special agents will be furnished with record cards (Form 4) showing for establishments in their respective

districts that reported at the census of 1914, products valued at $20,000 and over, the industry, capital, average number of wage earners, total wages, cost of materials, value of products, and total horsepower as shown by the respective reports for that year. These data are confidential and only for use as disclosing any glaring inconsistency which it is deemed proper to have explained or corrected before the report for 1919 is forwarded to the Census Office. If, after investigation, which in such cases should be conducted by the chief special agent personally when practicable, differences or inconsistencies are found to exist, an explanation should be made under "Remarks"; otherwise, correspondence on the subject might be deemed necessary by the office.

160. Assignment of assistant agents to districts or special classes of industries.—Each chief special agent will be given the index cards and lists of all the establishments in his district. These cards will be arranged in suitable subdistricts for the assistant agents. The chief special agent must familiarize himself with this arrangement and be in a position to assign assistant agents to the different districts as rapidly as may be necessary.

In those districts where there are a considerable number of establishments engaged in the same class of industry, such as the "textiles" in Philadelphia, New York, and Lowell; "iron and steel" in Pittsburgh, "slaughtering and meat packing" in Chicago, the chief special agent should select one or more agents to devote themselves specially to securing schedules from such industries. Even where the agent has no special knowledge of those industries, it is believed that by devoting himself to particular industries he will soon acquire greater efficiency in securing the particular information sought. Such special assignment, however, should not be made unless it is believed it will result in a material increase in the value of the work and does not entail too great a loss of time.

Where a district comprises a city and surrounding or near-by territory the canvass of the city should, as a rule, be finished before any agents are assigned to the outlying districts. As far as possible the work of assistant agents should be confined to the cities for which they are appointed. This is necessary in order to avoid expense for traveling and allowance in lieu of subsistence. When chief special agents deem it necessary that an assistant agent be allowed street-car fare or other traveling expenses and subsistence he should make recommendation accordingly.

161. Examination of reports by chief special agents.—Reports as received from assistant agents must be immediately examined by the chief special agents, for the purpose of determining whether the assistant agents are performing their duties properly and whether there

are any errors or omissions which can be detected by a cursory examination and which can at once be corrected. This examination should later be sufficiently extended to obviate the necessity for the return of the reports or for correspondence by the bureau with the establishments to which they relate. It is especially important that this examination of reports secured during the first few days that each assistant agent is at work be carefully made in order that any misconception on the part of the agent regarding the purport of a question or the character of answer desired may be corrected at the start.

162. Detail of clerks from the office to assist in the examination of schedules.—When necessary, clerks will be detailed from the regular office force to work in the office of the chief special agent to assist in the examination and criticism of the reports secured.

163. Reports after examination to be promptly forwarded to the Bureau of the Census.—All reports after their examination, which should be made immediately on their receipt, should be at once forwarded by registered mail to the Census Office. Under no circumstance should any considerable number of completed reports be allowed to accumulate in the office of a chief special agent.

164. Securing of reports from "central offices."—As a rule, establishments for which reports must be obtained at an office located elsewhere than at the plant are indicated upon the index card by the words "central office." Other instances of this kind may be discovered, and the chief special agents should see that the proper notice is given the office by use of various postal cards provided for such cases. In many instances considerable time can be saved by making cross references direct to the agents in whose districts the offices are situated, and such action should be taken by the chief special agents whenever possible. A list of the agents in charge of the different districts to whom such direct cross references can be made will be furnished the chief special agents as rapidly as the field force is organized.

165. Cases when report by mail may be made.—A number of large corporations, most of which own plants located in different sections of the country, have requested permission to send their reports direct to the bureau by mail. A list of these corporations will be furnished the special agent, and they should be called upon early in the canvass to see if any advice or assistance can be given in the preparation of the reports, and also to make sure that they still desire to submit the reports by mail. The chief special agent will be notified of the receipt by the office of such reports, and will, therefore, be expected to keep in touch with cases of this character, and assure himself that there is no unreasonable delay in the preparation and transmission of

the reports. It may be found in some instances that one or more of the reports will not be furnished from the "central office" and it will be necessary to instruct the local agent for the district in which the factory is located to secure it. If such local agent has finished his district or has passed the point at which the plant is located before the advice is received, serious delay may result. Furthermore, longer time is required for the preparation of reports by large corporations with their numerous plants, and unless application is made during the first stages of the canvass and they are properly reminded of the necessity for prompt action serious delay may be encountered in the compilation of the data for the states in which such plants are located. Great inconvenience has been caused in the compilation of data at previous censuses by the failure to get these returns promptly, and especial care should therefore be taken to obviate such delay at this census. There will no doubt be some delay in the preparation of the reports for such companies, but the agent should obtain on his first visit positive assurance that the reports for all of the plants will or will not be prepared at the "central office" and make a statement of the facts on his daily report.

166. Securing of reports in specially difficult cases and closing of the canvass in the district.—The duties of the chief special agents are principally supervisory. It will be their duty, however, to give their personal attention to the matter of securing reports from recalcitrant manufacturers, from establishments where unusual difficulties or complications are present, and particularly from establishments or companies that control a number of plants located in different sections of the country, and establishments operated under the same ownership but located within and outside the corporate limits of the cities in their district and requiring separate reports for the different plants.

167. Central Office.—Cards giving the name and location of each plant controlled from the central office will be furnished the agents. The concerns named on these cards have advised the bureau that manufacturing is carried on at each location named on the card. The agent, therefore, must account satisfactorily for each place named by securing a report or obtaining information that will enable him to dispose of the plant by reporting it as "Not a manufacturer," "Out of business," or for some other reason. Notations of this character must be made opposite each plant on each card for which returns are not secured. (See par. 15.)

168. Supply of forms.—Chief special agents should see that they always have on hand a supply of schedules, instructions, stationery, etc., sufficient to meet their own needs and those of all the agents under their direction.

SUPPLEMENTAL INSTRUCTIONS TO "OFFICE AGENTS."

169. To instruct local agents.—The following instructions are for the guidance of those clerks and agents who will be detailed to instruct the special agents who are to canvass districts in which there is no city of sufficient size to warrant the employment of a chief special agent.

170. General duties.—The clerks and agents so detailed will be known as "office agents" and will have duties in many respects similar to those of chief special agents. As in the case of the latter, they must thoroughly familiarize themselves with all the schedules, instructions, office requirements, and the like, in order that they may instruct the agents who are to do the work of canvassing the several districts, supervise them in their work, and assist them in meeting all difficulties that may present themselves. Each "office agent" should appreciate that he will, in considerable measure, be held responsible for the character of the work of the local agents he instructs. He must be particular, therefore, to impress upon these agents the importance of the work and the imperative necessity of making a complete and rapid canvass.

171. Visiting local agents.—Local agents for the districts above described will be appointed from persons who have been carefully selected. They will be advised by letter that a representative of the office will visit them at a designated time and place for the purpose of giving them instructions and starting them at work. The "office agent" will be given a list of names and addresses of the persons selected for appointment and information concerning the designated time and place for the receipt of instructions. This list will be so arranged that the local agents will be employed in adjoining districts, so that they may be visited with the least expenditure of time. It will be the duty of the "office agent" to visit these local agents at the times and places designated. The "office agent" will be given the appointment papers, supplies, index cards, etc., for all of the local agents he will be required to instruct, and will be held responsible for the delivery of these supplies to the proper persons.

172. Authority to reject or suspend local agents.—If, after a personal interview, the "office agent" is satisfied that the person designated for appointment can not do the work in a satisfactory manner, he must at once report the fact to the office, giving in detail the reasons why the person will not make a satisfactory agent. As these persons have in all cases been chosen with care, it is to be presumed that they are competent.

If it develops, from a practical trial, that the local agent can not do the work, the "office agent" is authorized to suspend him from duty. In such case, however, he must immediately report the fact. In the event of either of the above contingencies resulting in a vacancy, the "office agent" should immediately secure a proper person for the position and allow him to take the oath of office and enter on duty.

173. Instruction of local agents.—The "office agent" must instruct each local agent how to prepare the schedules, direct him to send his daily reports, schedules, index cards, etc., directly to the Bureau of the Census and, in a word, see that he is thoroughly familiar with all of the requirements of the office and is equipped to make a satisfactory canvass of his district. To make sure that local agents understand what is required of them and are able to perform their duties, the "office agent" should work with each local agent one or two days or for such period of time as he may find necessary. He should visit establishments with the local agents and actually participate in the preparation of the schedules. If the district comprises the city and surrounding territory, the local agent must be instructed to complete the canvass of the city before going into the rural district. After having instructed the local agent the "office agent" must turn over to him the cards, lists, envelopes, schedules, and other supplies and direct him to proceed with the canvass, sending in his schedules and daily reports directly to the Bureau of the Census. The "office agent" must make a report on each local agent, and in such report must make recommendations in regard to traveling expenses and allowance in lieu of subsistence that should be granted.

174. District to be personally canvassed by "office agent."—Each "office agent," in addition to instructing local agents, will be assigned a district to canvass personally. It will be to his advantage to begin actual work in his own district as soon as possible. He should therefore proceed rapidly with the instruction of local agents on his list.

EXTRACTS FROM THE ACT OF CONGRESS PROVIDING FOR THE FOURTEENTH AND SUBSEQUENT DECENNIAL CENSUSES, ACT APPROVED MARCH 3, 1919.

Be it enacted, * * * That a census of the population, agriculture, manufactures, forestry and forest products, and mines and quarries of the United States shall be taken by the Director of the Census in the year nineteen hundred and twenty and every ten years thereafter.

SEC. 8. * * * The schedules of inquiries relating to manufactures, to forestry and forest products, and to mines and quarries shall include the name and location of each establishment; character of organization, whether individual, corporate, or other form; character of business or kind of goods manufactured; amount of capital actually invested; number of proprietors, firm members, copartners and officers, and the amount of their salaries; number of employees and the amount of their wages; quantity and cost of materials used in manufactures; principal miscellaneous expenses; quantity and value of products; time in operation during the year; character and quantity of power used; and character and number of machines employed.

The census of manufactures, of forestry and forest products, and of mines and quarries shall relate to the year ending December thirty-first, next preceding the enumeration of population, and shall be confined to manufacturing establishments and mines and quarries which were in active operation during all or a portion of that year. The census of manufactures shall furthermore be confined to manufacturing establishments conducted under what is known as the factory system, exclusive of the so-called neighborhood, household, and hand industries.

Whenever he shall deem it expedient, the Director of the Census may charge the collection of these statistics upon special agents or upon detailed employees, to be employed without respect to locality.

The number, form, and subdivision of inquiries provided for in section eight shall be determined by the Director of the Census.

* * * * *

SEC. 22. That any supervisor, supervisor's clerk, enumerator, interpreter, special agent, or other employee who, having taken and subscribed the oath of office required by this Act, shall, without justifiable cause, neglect or refuse to perform the duties enjoined on him by this Act shall be deemed guilty of a misdemeanor and upon conviction thereof shall be fined not exceeding $500; or if he shall, without the authority of the Director of the Census, publish or communicate any information coming into his possession by reason of his employment under the provisions of this Act, or the Act to provide

for a permanent Census Office or Acts amendatory thereof or supplemental thereto, he shall be guilty of a felony and shall upon conviction thereof be fined not to exceed $1,000 or be imprisoned not to exceed two years, or both so fined and imprisoned in the discretion of the court; or if he shall willfully and knowingly swear or affirm falsely as to the truth of any statement required to be made or subscribed by him under oath by or under authority of this Act or of the Act to provide for a permanent Census Office or Acts amendatory thereof or supplemental thereto, he shall be deemed guilty of perjury, and upon conviction thereof shall be fined not exceeding $2,000 or imprisoned not exceeding five years, or both; or if he shall willfully and knowingly make a false certificate or a fictitious return he shall be guilty of a felony, and upon conviction of either of the last-named offenses he shall be fined not exceeding $2,000 or be imprisoned not exceeding five years, or both; or if any person who is or has been an enumerator shall knowingly or willfully furnish or cause to be furnished, directly or indirectly, to the Director of the Census or to any supervisor of the census any false statement or false information with reference to any inquiry for which he was authorized and required to collect information he shall be guilty of a felony, and upon conviction thereof shall be fined not exceeding $2,000 or be imprisoned not exceeding five years, or both.

* * * * *

SEC. 24. That it shall be the duty of every owner, official, agent, person in charge, or assistant to the person in charge, of any company, business, institution, establishment, religious body, or organization of any nature whatsoever, to answer completely and correctly to the best of his knowledge all questions relating to his respective company, business, institution, establishment, religious body, or other organization, or to records or statistics in his official custody, contained on any census schedule prepared by the Director of the Census under the authority of this Act, or of the Act to provide for a permanent Census Office, approved March sixth, nineteen hundred and two, or of Acts amendatory thereof or supplemental thereto; and any person violating the provisions of this section by refusing or willfully neglecting to answer any of said questions, or by willfully giving answers that are false, shall be guilty of a misdemeanor, and upon conviction thereof shall be fined not exceeding $10,000, or imprisoned for a period not exceeding one year, or both so fined and imprisoned.

SEC. 25. That the information furnished under the provisions of the next preceding section shall be used only for the statistical purposes for which it is supplied. No publication shall be made by the Census Office whereby the data furnished by any particular estab-

lishment can be identified, nor shall the Director of the Census permit anyone other than the sworn employees of the Census Office to examine the individual reports.

SEC. 26. That all fines and penalties imposed by this Act may be enforced by indictment or information in any court of competent jurisdiction.

* * * * *

SEC. 29. That all mail matter, of whatever class or weight, relating to the census and addressed to the Census Office, or to any official thereof, and indorsed "Official business, Census Office," shall be transmitted free of postage, and by registered mail if necessary, and so marked: *Provided*, That if any person shall make use of such indorsement to avoid the payment of postage or registry fee on his or her private letter, package, or other matter in the mail, the person so offending shall be guilty of a misdemeanor and subject to a fine of $300, to be prosecuted in any court of competent jurisdiction. (See Insert No. 506. Order No. 3452 of Postal Laws and Regulations.)

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